Single Aisle
TECHNICAL TRAINING MANUAL
T1+T2 (IAE V2500) (Lvl 2&3)
DOORS

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DOORS

GENERAL

Doors System Component Location (2) 2

PASSENGER DOORS

Operation from Inside (2) 12
Operation from Outside (2) 14
Emergency Operation (2) 18
Slide Arming Mechanical Operation (2) 20
Structure Description (3) 22
Locking Mechanism Description (3) 24
ESC Slide/Raft Control Mechanism Desc (3) 26
Damper/Emergency Cylinder Description (3) 32

EMERGENCY EXITS (A318/A319/A320)

Doors Operation (2) 40
Doors Opening for Maintenance (2) 44
Doors Structure Description (3) 48
Locking Mechanism Description (3) 50

EMERGENCY EXITS (A321)

Doors Operation (2) 52
Doors Structure Description (3) 56
Locking Mechanism Description (3) 58

CARGO DOORS

Normal Operation (2) 60
Manual Operation (2) 64
Bulk Cargo Door Operation (A320/A321) (2) 68
FWD & AFT Cargo Door Structure Description (3) 72
FWD & AFT Cargo Door Locking MECH D/O (3) 74
Hydraulic System D/O (3) 82

COCKPIT DOOR

Cockpit Door Operation (2) 106
Cockpit Door D/O (3) 114

INDICATING/WARNING

Doors Indication & Warning D/O (3) 130
Doors System Line Maintenance (2) 160

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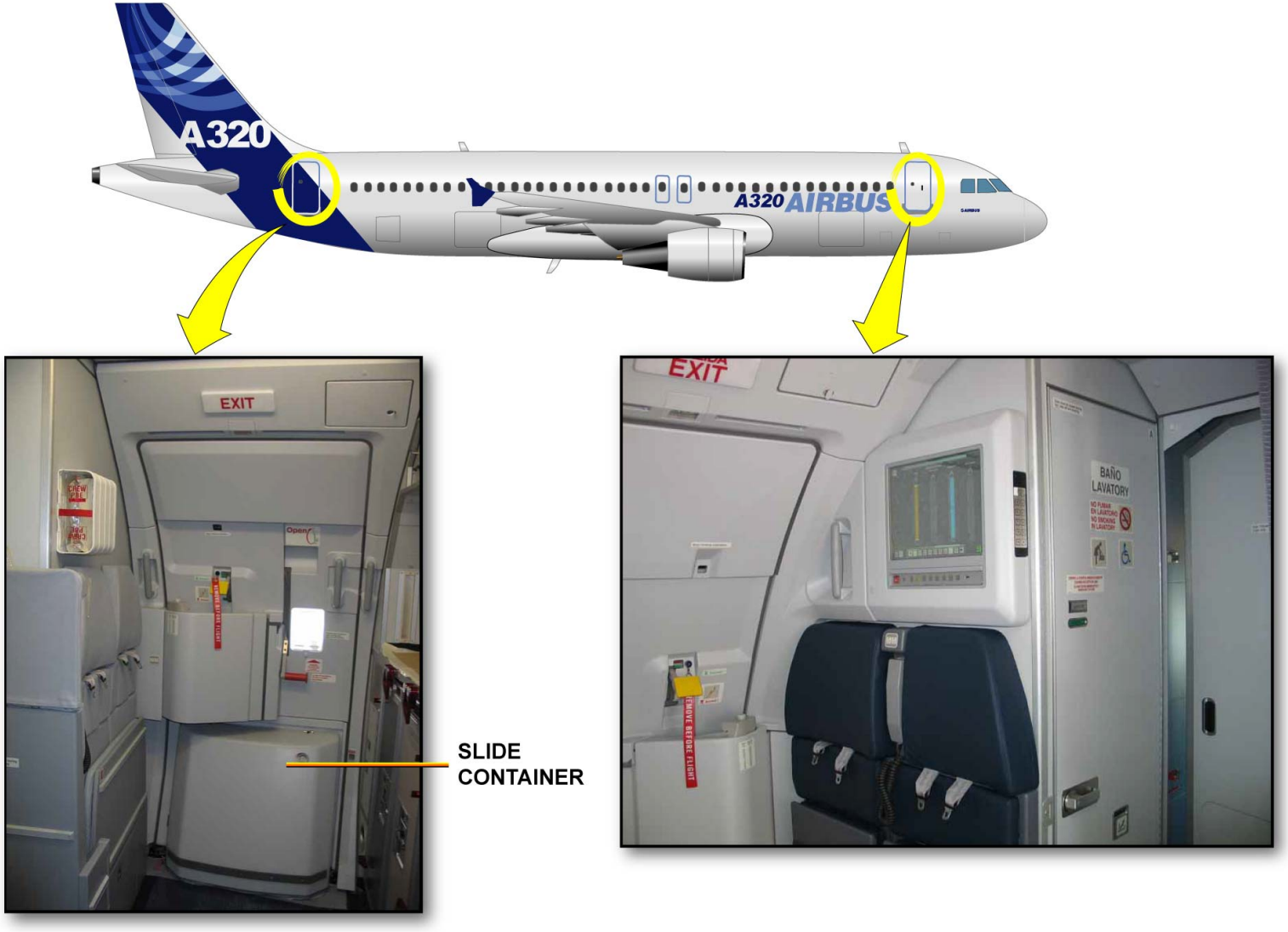
DOORS SYSTEM COMPONENT LOCATION (2)

SYSTEM OVERVIEW

The different doors of the single aisle family are:
- Passenger doors,
- Emergency exits,
- Cargo doors,
- Avionics compartment doors,
- Cockpit door.

PASSENGER DOORS

The single aisle family is equipped with two forward and two aft passenger doors. These are plug-type doors that open upward, outward and forward parallel to the fuselage. The doors can be operated from the inside or the outside the aircraft. Normal operation of the doors is manual, with hydraulic damping.
Each door is equipped with an emergency opening system:
- An escape slide stowed in a container attached to the lower side of the door,
- A door damping and emergency operation cylinder that assists normal door operation and acts as an actuator for automatic door opening in an emergency,
- a slide ARMING/DISARMING lever. When the slide-arming lever is in the ARMED position, the slide is connected to the floor. When the door is opened from inside, the escape slide inflates and deploys automatically. Opening the door from the outside disarms the escape slide mechanism automatically. The slide remains then undeployed.



SYSTEM OVERVIEW - PASSENGER DOORS

DOORS SYSTEM COMPONENT LOCATION (2)

SYSTEM OVERVIEW (continued)

EMERGENCY EXITS

The A318 and A319 are equipped with two overwing emergency exits (one on each side). The A319 can also have four overwing emergency exits optionally (two on each side).
The A320 is equipped with four overwing emergency exits (two on each side).
The A321 is equipped with four emergency exit doors (two on each side) located forward and aft of the wing.
On the A318, A319, and A320 aircraft, for emergency evacuation, the exit can be opened from inside or outside the cabin to activate the evacuation system. Normally these emergency exits are always armed. To open the exit for maintenance, authorized personnel must disarm it from the inside.
The A321 emergency exit door can be opened from inside or outside. These exits must be armed in flight and disarmed on the ground.

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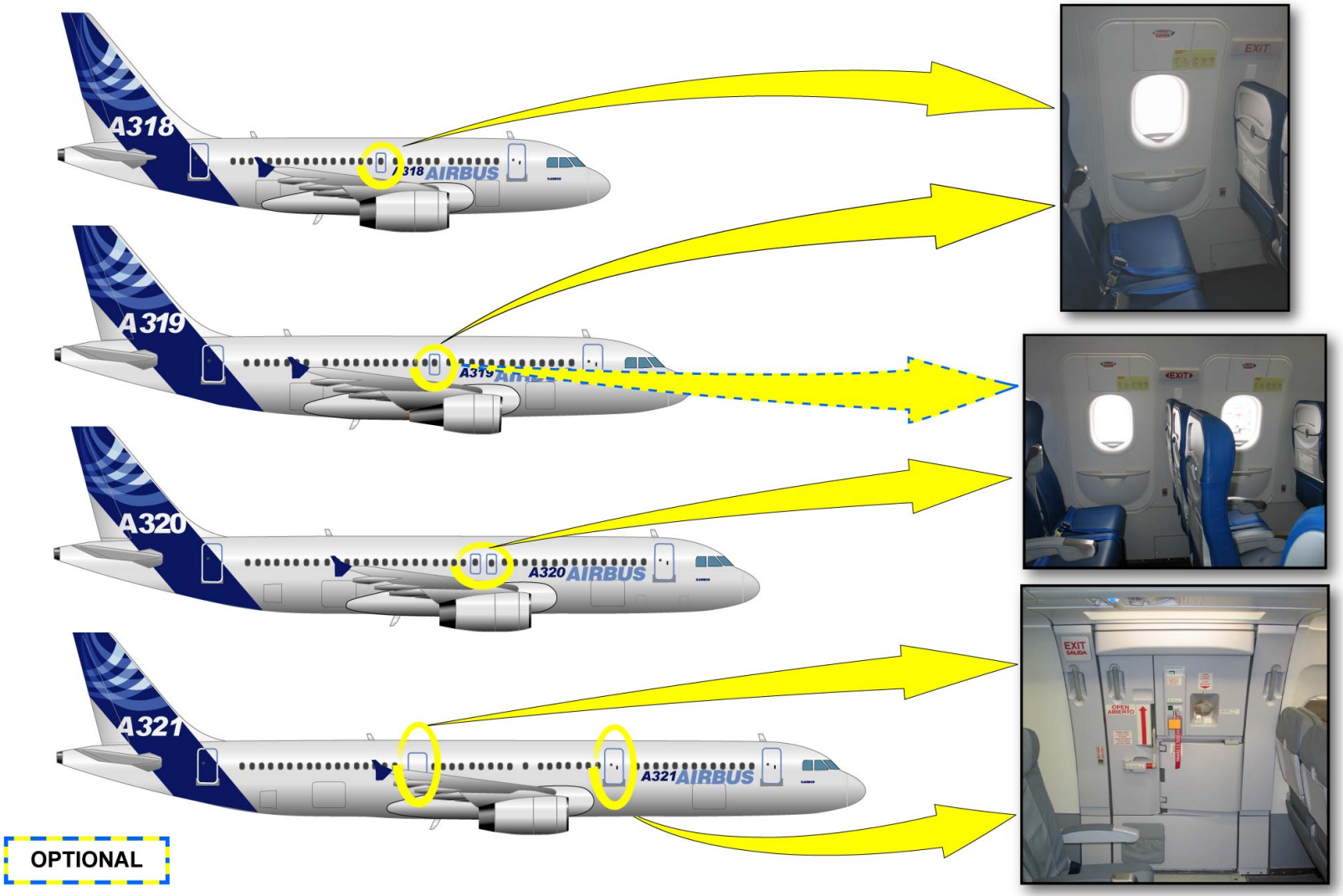


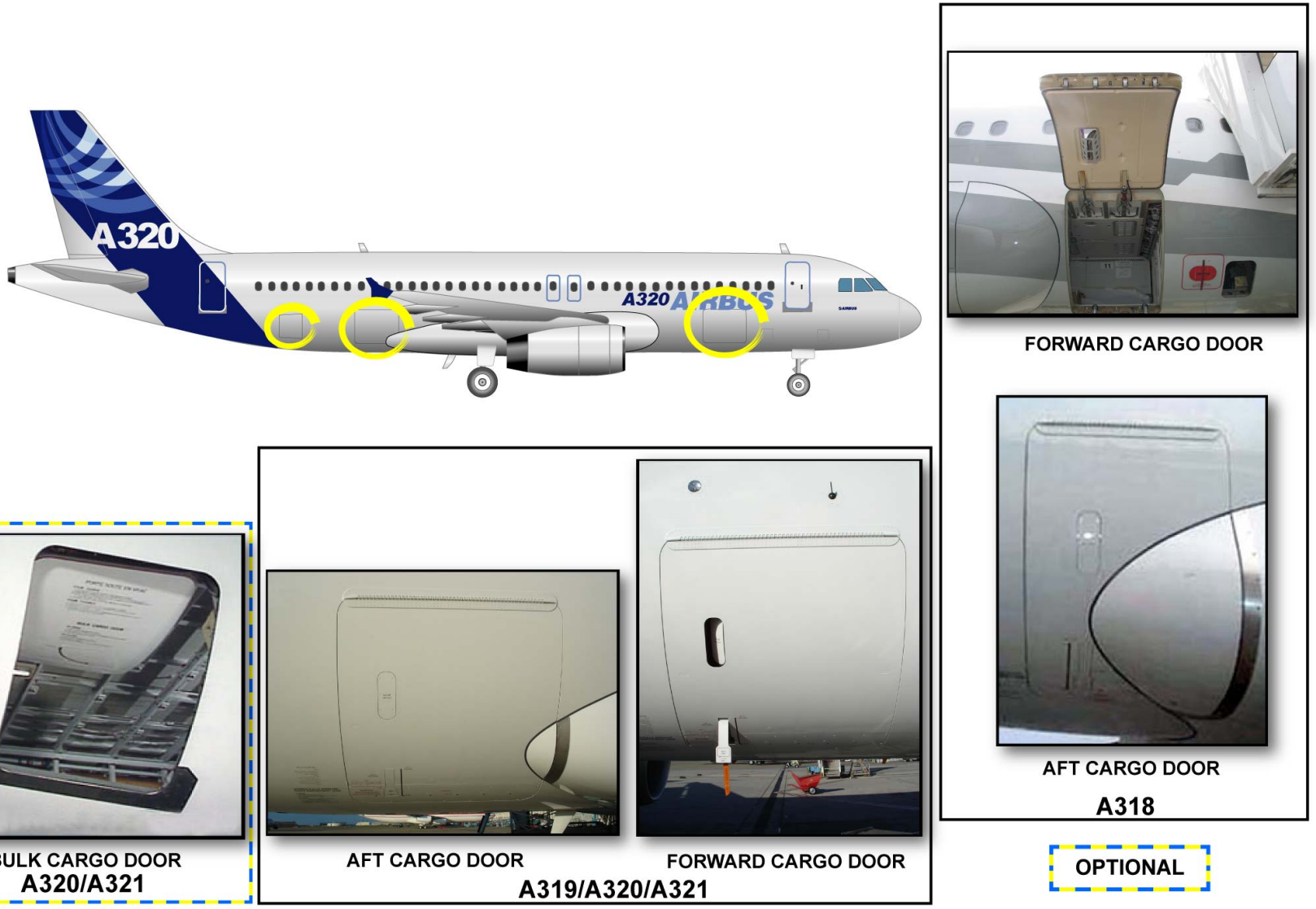
SYSTEM OVERVIEW - EMERGENCY EXITS

DOORS SYSTEM COMPONENT LOCATION (2)

SYSTEM OVERVIEW (continued)

CARGO DOORS

The cargo compartment doors, installed on the lower right hand side of the fuselage, give access to the forward and aft cargo compartments. They open outwards and upwards from the fuselage. They are manually locked and unlocked by a locking handle on the door. The forward and aft cargo doors are operated hydraulically using the yellow system electric pump.
In case of electrical failure the door can be opened manually using a hand pump.
The bulk cargo door is installed aft of the aft cargo door on the A320 and A321. The bulk door gives access to the bulk cargo compartment. The door is operated manually and opens into the compartment.



SYSTEM OVERVIEW - CARGO DOORS

DOORS SYSTEM COMPONENT LOCATION (2)

SYSTEM OVERVIEW (continued)

AVIONICS COMPARTMENT DOORS

There are four avionics compartment access doors on the lower fuselage around the nose landing gear bay. These doors are manually operated and open inward. The locking mechanism is identical on each door.

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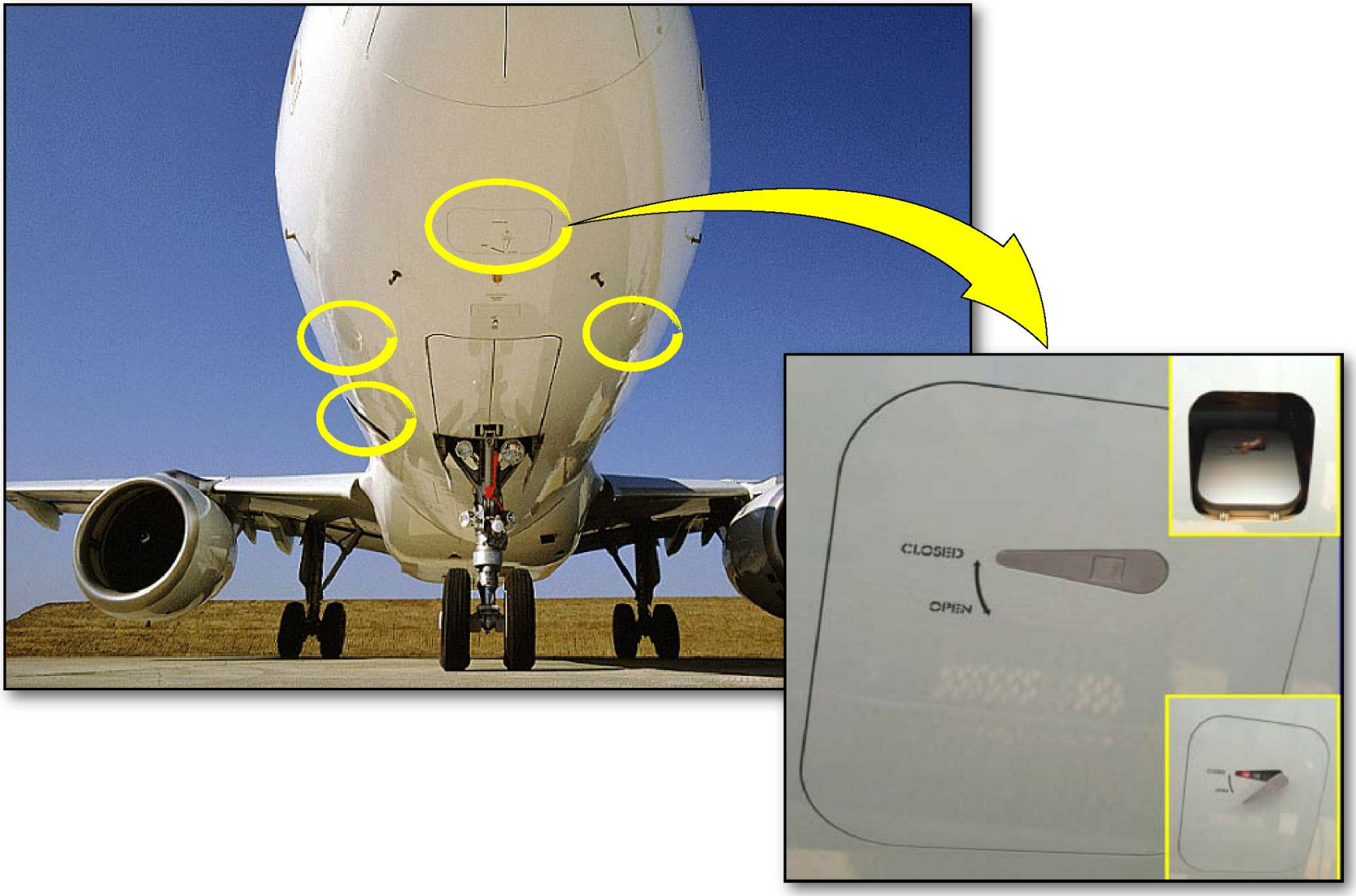


SYSTEM OVERVIEW - AVIONICS COMPARTMENT DOORS

DOORS SYSTEM COMPONENT LOCATION (2)

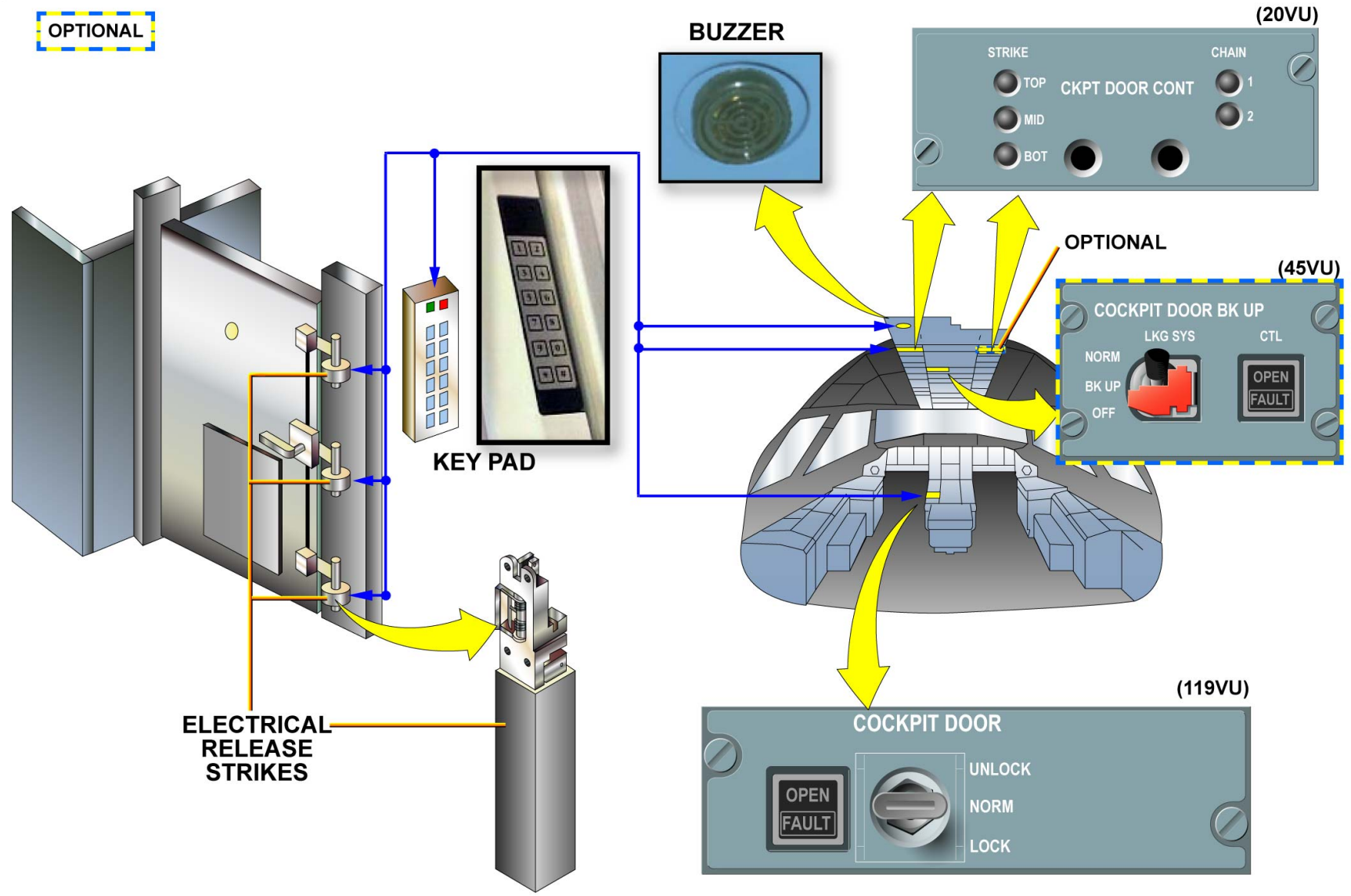
SYSTEM OVERVIEW (continued)

COCKPIT DOOR

The cockpit door separates the cockpit from the cabin. It is an armored and bulletproof door designed to prevent a hijacking attempt and to protect the flight compartment against an intrusion. The door is always locked when closed and the aircraft is powered. A Cockpit Door Locking System (CDLS) controls the electrical release of the door lock and prevents unauthorized access into the cockpit. The door has a door escape hatch with two pip-pins, which keep the hatch in position.

The components of the cockpit door locking system include:

- Cockpit door panel on the pedestal with toggle switch to control the cockpit door locking and unlocking,
- Keypad in the cabin for cockpit access authorization,
- Three electrical release strikes,
- Overhead control unit in cockpit with integrated maintenance annunciators,
- Buzzer on cockpit overhead panel.



SYSTEM OVERVIEW - COCKPIT DOOR

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OPERATION FROM INSIDE (2)

normal opening

Before normal door opening:
- check that the arming lever is in the disarmed position,
- check that the cabin pressure indicator is not flashing,
- hold the assist handle on the door frame,
- lift the door control handle fully up,
- push the door outward,
- move the door forward by using the door assist handle.

The door locks when it is in fully open position.

normal closing

For closing:
- push the gust lock and move the door rearward towards the frame,
- with the help of the door assist handle pull the door in,
- lower the control handle.

The locking indicator turns from red to green which indicates the correct locking.

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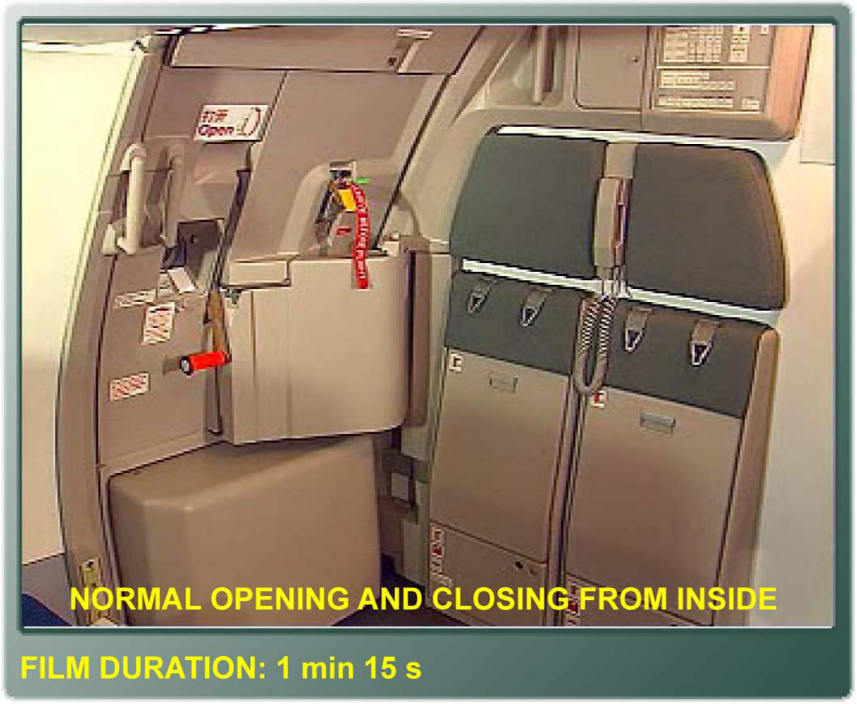


NORMAL OPENING & NORMAL CLOSING

OPERATION FROM OUTSIDE (2)

warning

Prior to opening a passenger door from outside, some safety precautions must be taken.

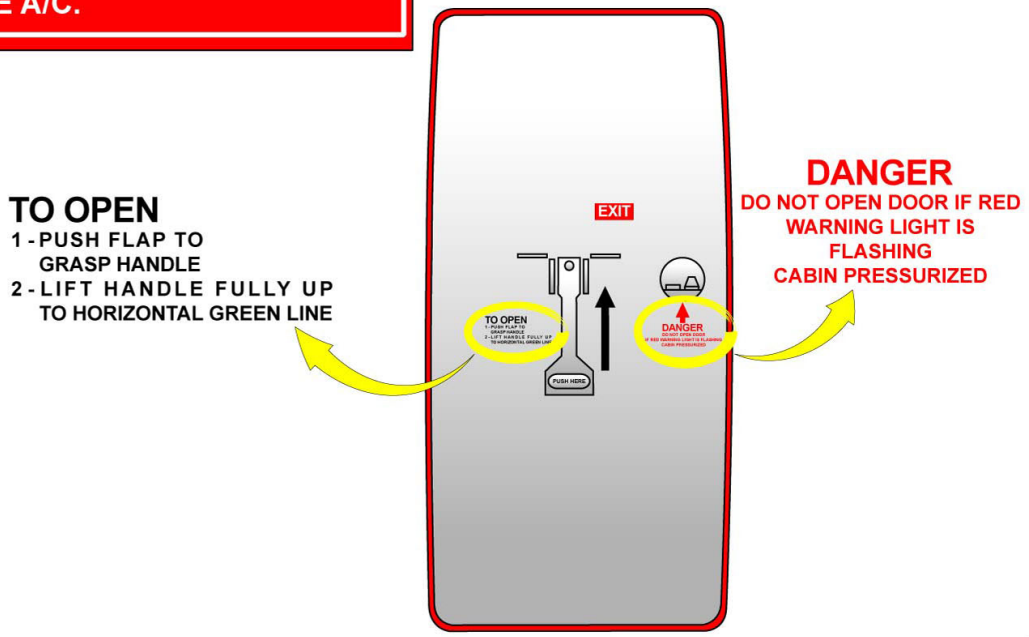
WARNING

-WHEN THE DOOR IS OPENED FROM OUTSIDE THE EVACUATION SYSTEM IS DISARMED AUTOMATICALLY.

-DO NOT OPEN THE PASSENGER/CREW DOOR IF THE WIND SPEED IS MORE THAN 65 Kts.

-DO NOT OPEN PRESSURE-SEALED DOORS WHEN THE A/C IS PRESSURIZED (FULLY OR NOT FULLY). THIS WILL CAUSE EXPLOSIVE DECOMPRESSION, KILL OR CAUSE INJURY TO PERSONS AND CAUSE DAMAGE TO THE A/C.

-STOP THE OPENING PROCEDURE IF THE RED WARNING LIGHT FLASHES. RESIDUAL PRESSURE COULD CAUSE THE DOOR TO OPEN WITH A SUDDEN FORCE AND INJURE PERSONS AND/OR DAMAGE THE A/C.


TO OPEN
1 - PUSH FLAP TO GRASP HANDLE
2 - LIFT HANDLE FULLY UP TO HORIZONTAL GREEN LINE
EXIT
DANGER
DO NOT OPEN DOOR IF RED WARNING LIGHT IS FLASHING
CABIN PRESSURIZED

WARNING

OPERATION FROM OUTSIDE (2)

opening

Labels next to the exterior handle indicate how to open the door from the outside. Check through the observation window that the cabin pressure indicator does not flash. Push the flap in and grasp the handle, lift it fully up to the horizontal green line. Pull the door outward and push forward until it locks in the fully open position. For safety reasons, lower the handle into its recess.

closing

Prior to closing, push the gust lock to unlock the door. Lift the control handle and move the door towards the frame. Push the door in and lower the control handle. The door is locked when the handle is flush with the fuselage.

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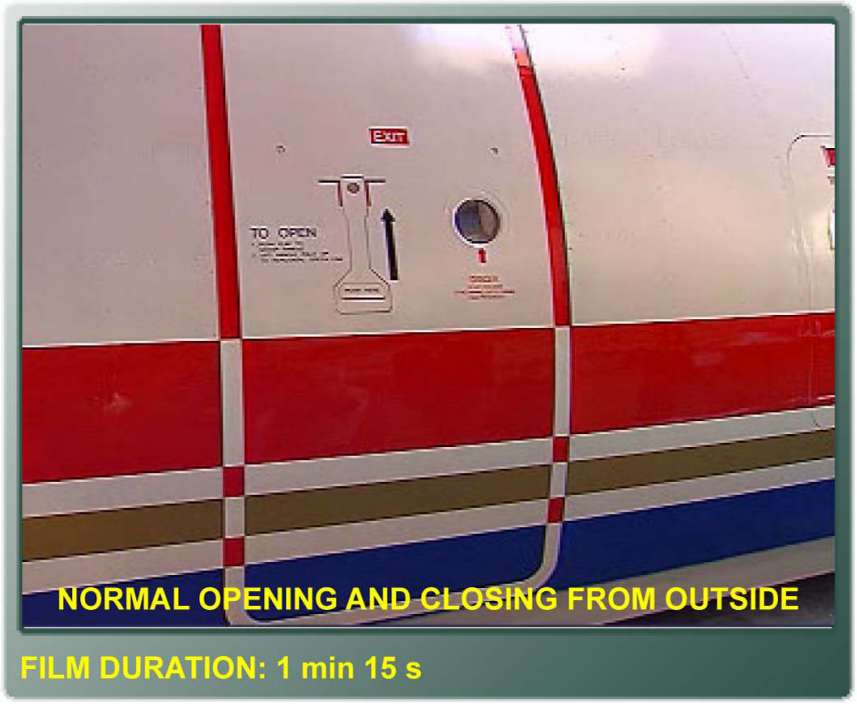

OPENING & CLOSING

EMERGENCY OPERATION (2)

emergency opening

In case of emergency opening, check that the arming lever is in the armed position. Hold the frame assist handle. Check the conditions outside. Pull the door control handle rapidly fully up and release it. Door opens and locks automatically. Protect the exit until it is safe for the evacuation.

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EMERGENCY OPENING

SLIDE ARMING MECHANICAL OPERATION (2)

arming

In order to arm the evacuation device, the safety pin with the red flag must be removed and stored away. Push the arming control lever down. The red ARMED/green DISARMED indicator must show ARMED. If someone opens the armed door from the outside, by moving up the exterior control handle, the slide arming lever moves automatically to the disarmed position, which avoids accidental slide deployment.

disarming

To disarm the door, lift the arming control lever fully up. The ARMED-DISARMED indicator must be green and indicate DISARMED. Install the safety pin with the red flag to avoid inadvertent movement of the arming lever.

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ARMING & DISARMING

STRUCTURE DESCRIPTION (3)

LONGERONS

The horizontal longerons, vertical frame segments, outer skin, edge members and inner skin are riveted together.

DOOR STOPS

The loads resulting from the cabin pressure are transmitted by adjustable stop fittings to the door frame and to the fuselage.

GUIDE ROLLERS

The guide rollers mounted on the door frame and the guide ramps mounted on the fuselage frame block the door in the closed position. The guide rollers engage in a ramp to direct the travel path of the door during lowering operation.

SEAL

The door seal has a rubber extrusion with equally spaced pressurization holes. The door seal is installed around the edge of the door, and a sealing section is installed on to the door frame.

WINDOW

The observation window is used to see the door warning light from the outside. An observation window is installed on the door.

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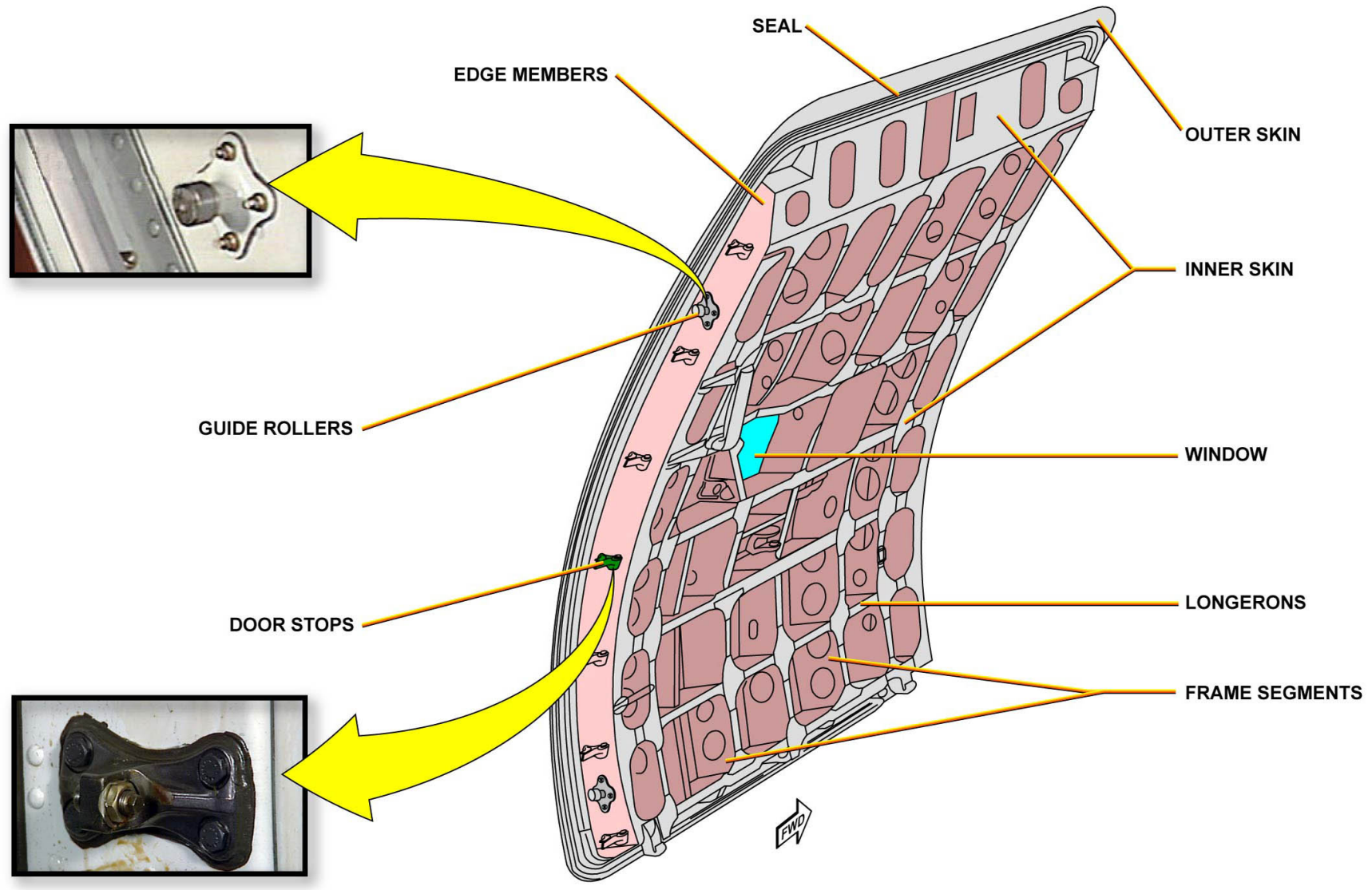


LONGERONS ... WINDOW

LOCKING MECHANISM DESCRIPTION (3)

LOCKING HOOK

The locking hook engages on a roller mounted on the doorframes. The door is locked by a hook.

SAFETY PIN

A safety pin blocks the door even if a double mechanical failure in the locking mechanism and the lifting mechanism occurs. The safety pin prevents any upward door movement.

LOCKING SHAFT

The locking shaft is locked in an over centered position. An arm on the locking shaft forms the visual locking indicator. The locking shaft is connected to the hook by a rod and bell crank.

SPRING ROD

The over centered position is maintained by a clearance even if structural deformation occurs. A spring rod maintains the locking shaft in an over centered position.

LOWERING SHAFT

The door cannot be lowered in the open position while beyond the doorframe. The lowering shaft mechanism locks the control handle to prevent the door from being lowered when not in contact with the doorsill.

EMERGENCY CONTROL HANDLE

The emergency control handle is located far from the inner control handle. It is connected via rods and levers to the girt bar actuating mechanism.

GEAR BOX

The shaft of the door central handles is coupled via a gear box so that the outer handle will not move when the door is lifted by operation of the inner handle. The gear box is connected by rods to the locking shaft and lifting lever.

DISARMING MECHANISM

When the outer control handle is operated, the release mechanism of the emergency escape slide/raft is returned to the disarmed position. A cam disk and a roller connect the emergency control handle and the outer control handle.

LIFTING LEVER

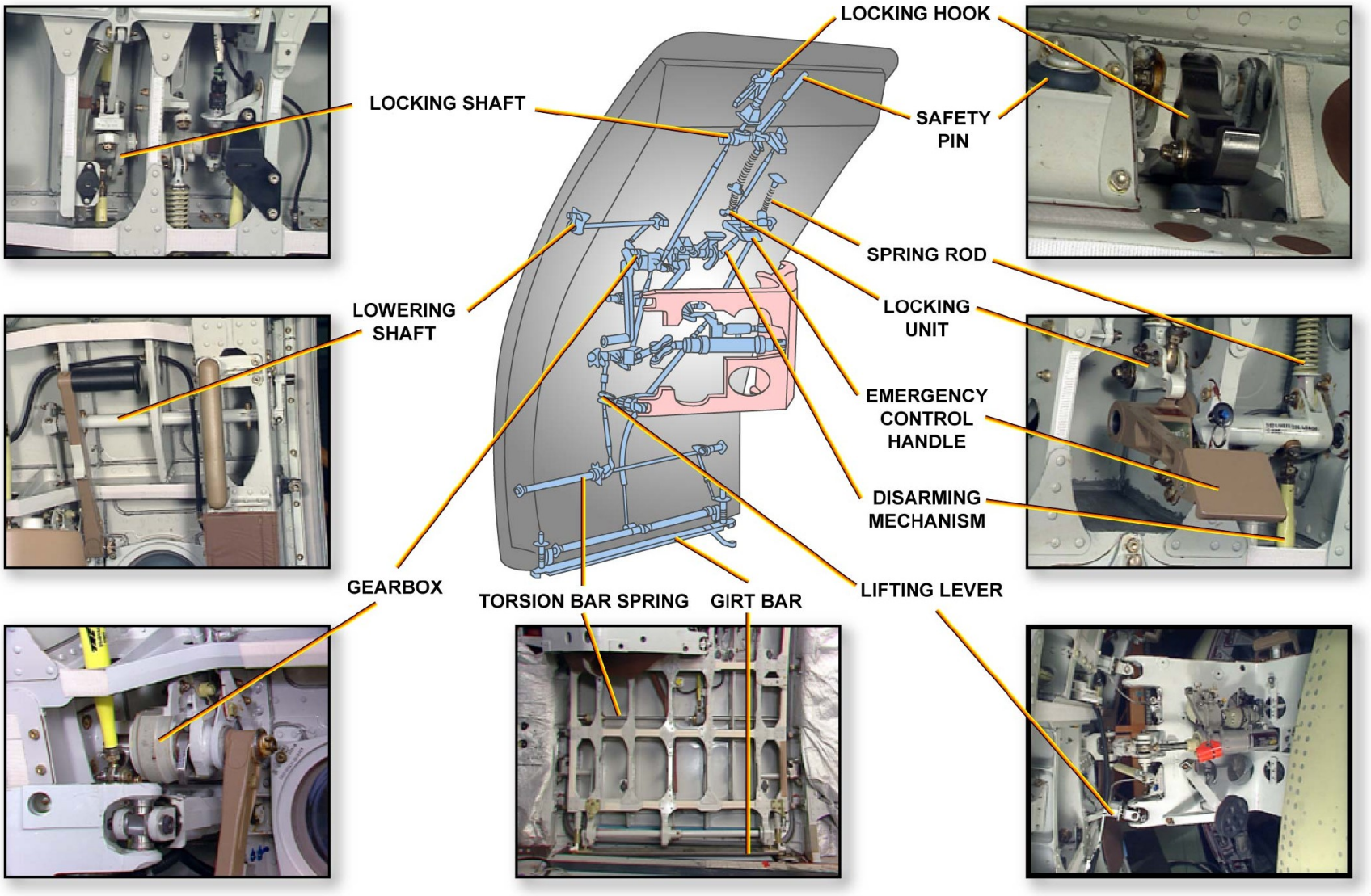
The door moves upwards until it clears the stop fitting and then moves outwards. The lifting lever is connected, to the support arm, which acts as a fixed point, and to the control mechanism mounted on the movable door, which transmits a lifting movement to the door.

TORSION BAR SPRING

A torsion bar spring compensates the weight of the door.

GIRT BAR

The escape slide/raft is fastened to the girt bar. The emergency control handle is connected to the girt bar.



LOCKING HOOK ... GIRT BAR

ESC SLIDE/RAFT CONTROL MECHANISM DESC (3)

DESCRIPTION

Here are the main systems of the escape slide/raft mechanism:
- control mechanism,
- automatic disarming,
- disarmed position,
- armed position.

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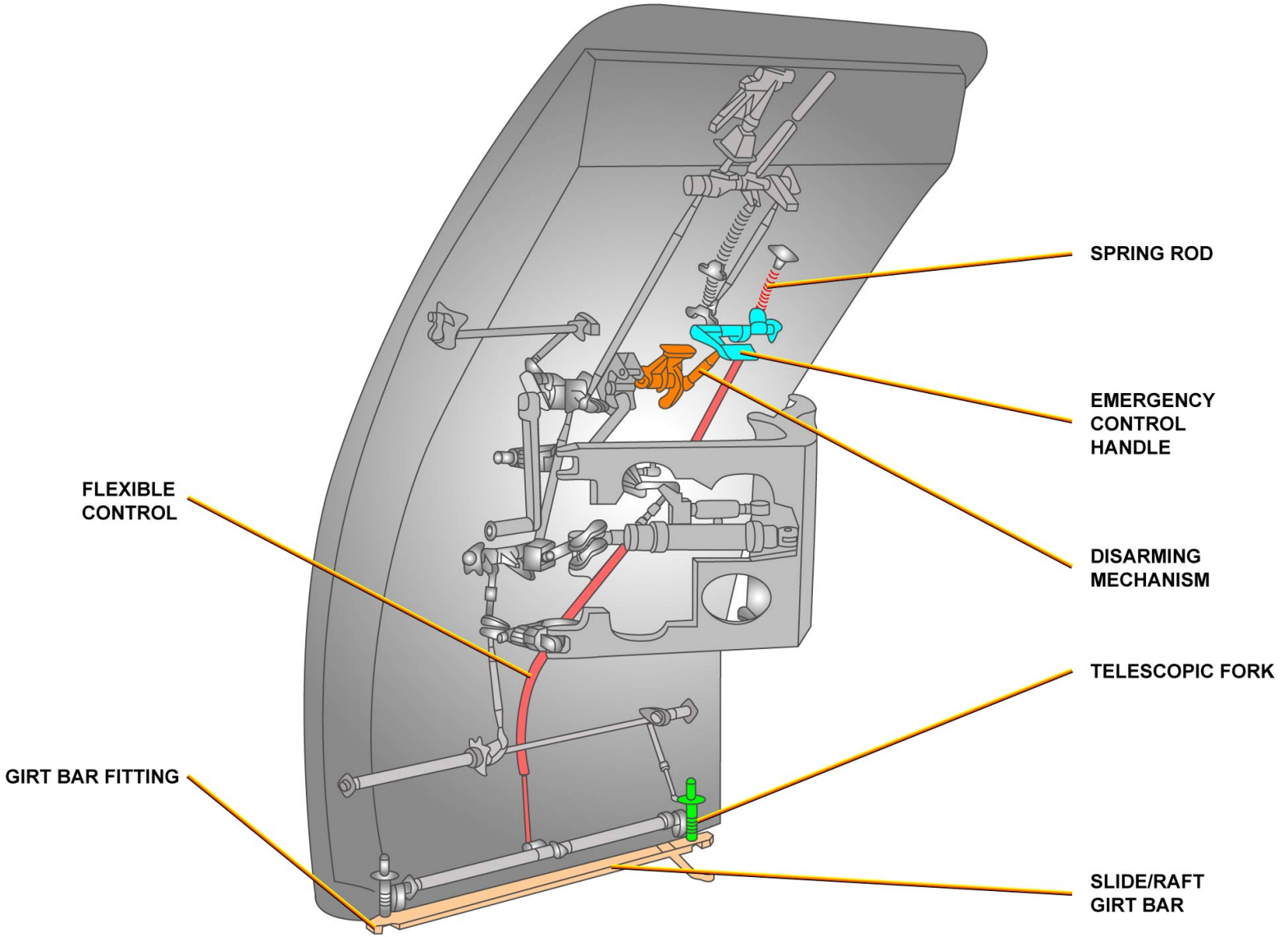


DESCRIPTION

ESC SLIDE/RAFT CONTROL MECHANISM DESC (3)

CONTROL MECHANISM

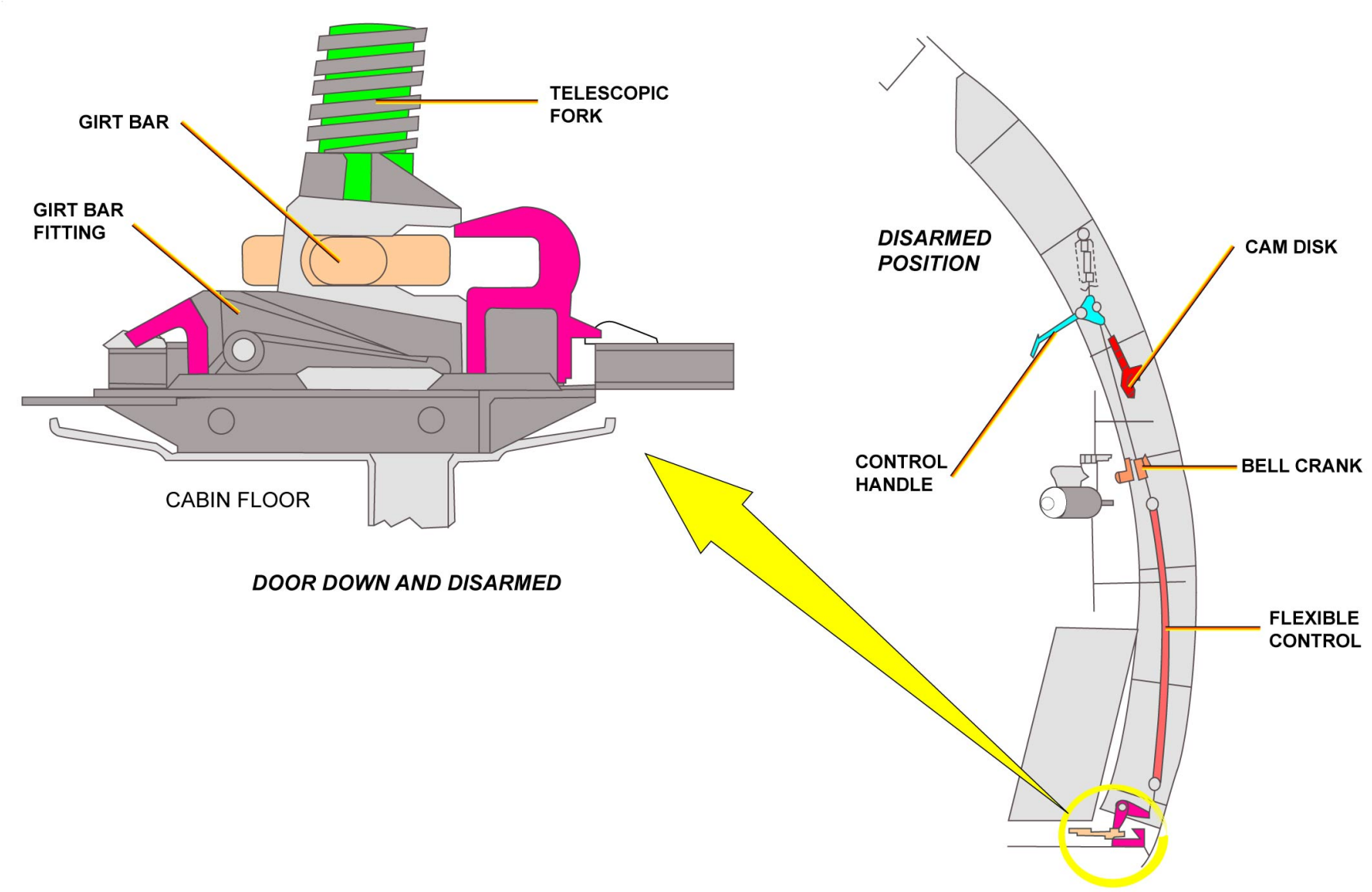
The control mechanism includes the control handle, the bell crank and the flexible control. The girt bar assembly which is connected to a flexible control is operated via the control handle and a bell crank.

AUTOMATIC DISARMING

A cam disk and a roller attach the escape slide/raft control lever to the exterior control handle in order to disarm the system automatically if the door is opened from the outside.

DISARMED POSITION

When the lever is in the DISARMED position, the girt bar remains part of the door when it is opened and remains in the telescopic forks.

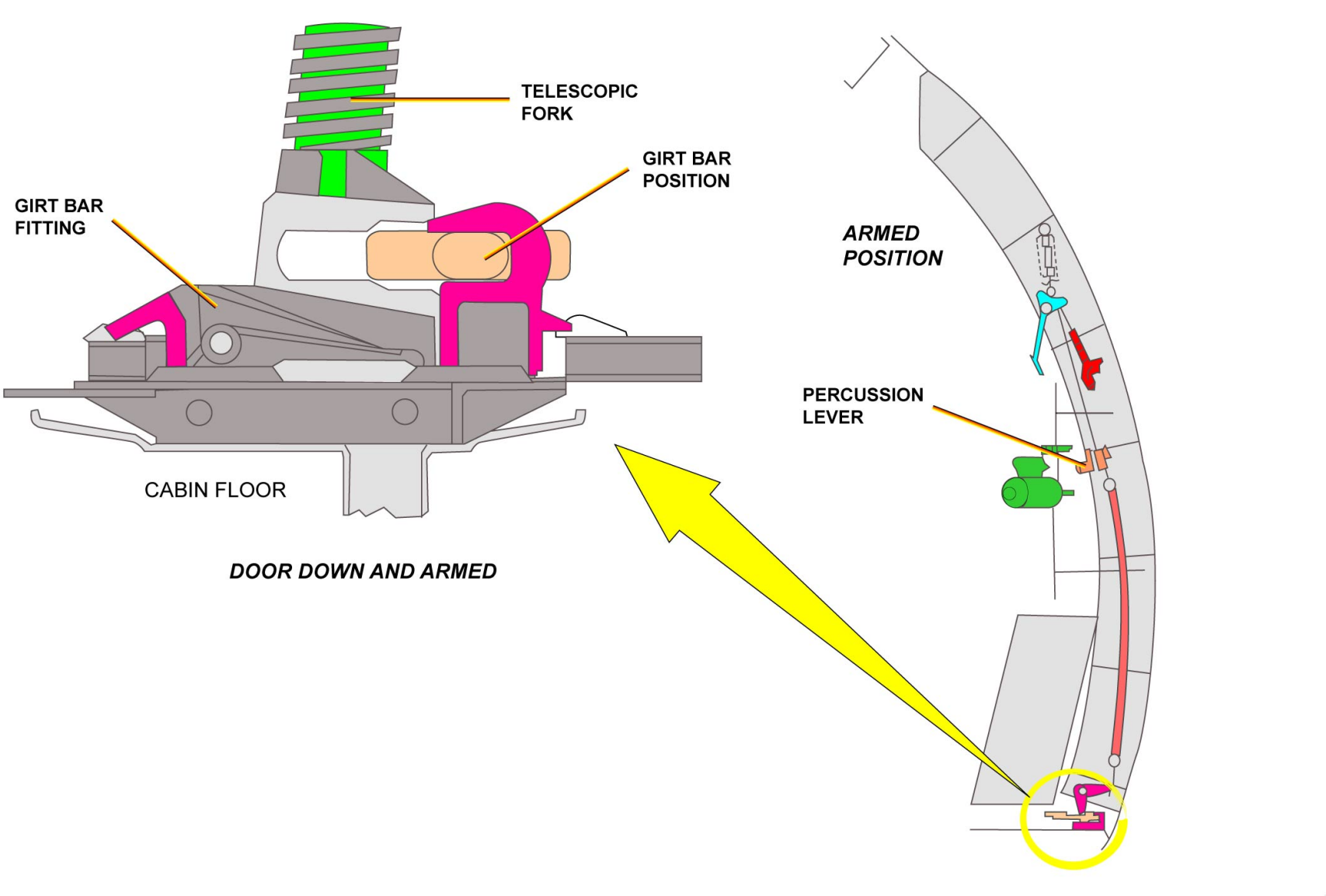


CONTROL MECHANISM ... DISARMED POSITION

ESC SLIDE/RAFT CONTROL MECHANISM DESC (3)

ARMED POSITION

In this case, the girt bar remains part of the floor when the door is opened in an emergency situation. When the arming lever is set to ARMED, the girt bar slides towards the girt bar fitting, and the emergency operation cylinder percussion lever is moved to the door emergency configuration.

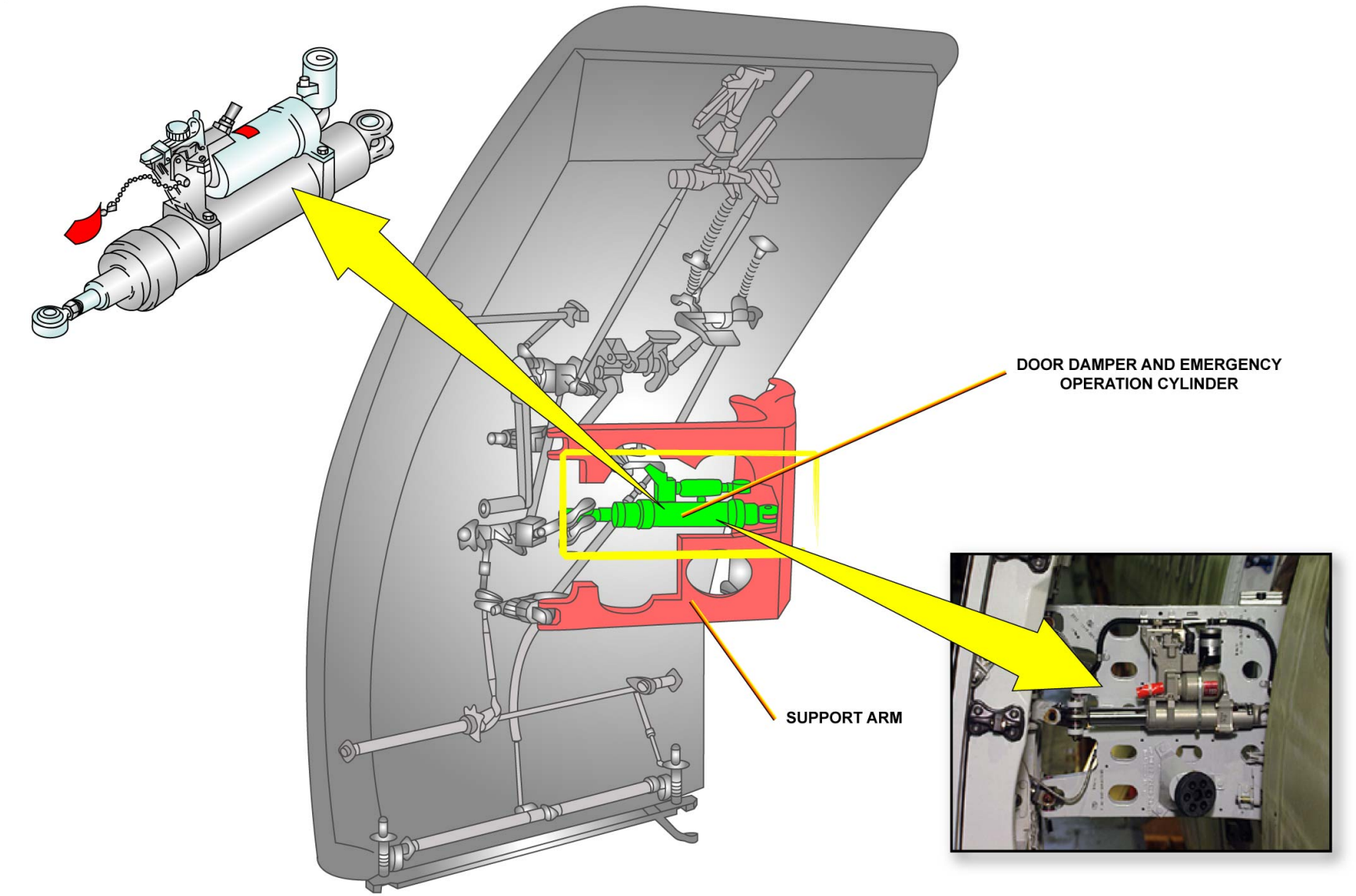


ARMED POSITION

DAMPER/EMERGENCY CYLINDER DESCRIPTION (3)

GENERAL

The damper and emergency operation cylinder, located on the support arm, damp door movement during opening and closing sequences.



GENERAL

DAMPER/EMERGENCY CYLINDER DESCRIPTION (3)

DOOR DAMPER FUNCTION

The door damper cylinder function is to damp door movement during opening and closing, in windy conditions for example. Damping is done by hydraulic fluid going through a restrictor as the operating rods extend or retract.

EMERGENCY FUNCTION

The damper and emergency operation cylinder forms an emergency actuator that assists and improves the opening speed of the door in emergency conditions. When opened in an emergency situation, the operating percussion lever lets the nitrogen bottle pressure act upon the piston to push it out.

NOTE: The door can be closed after an emergency opening.

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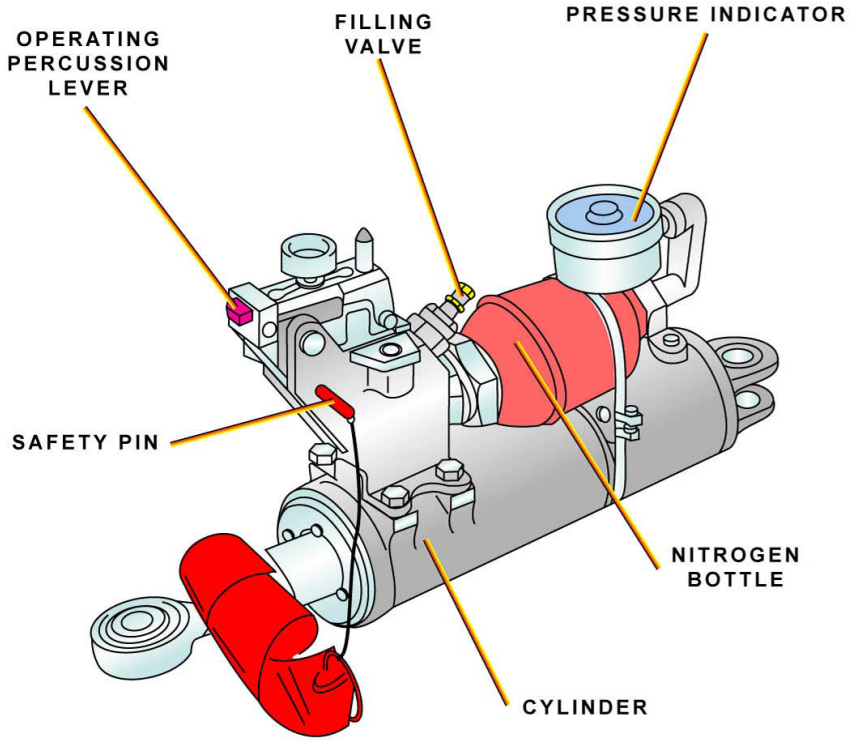
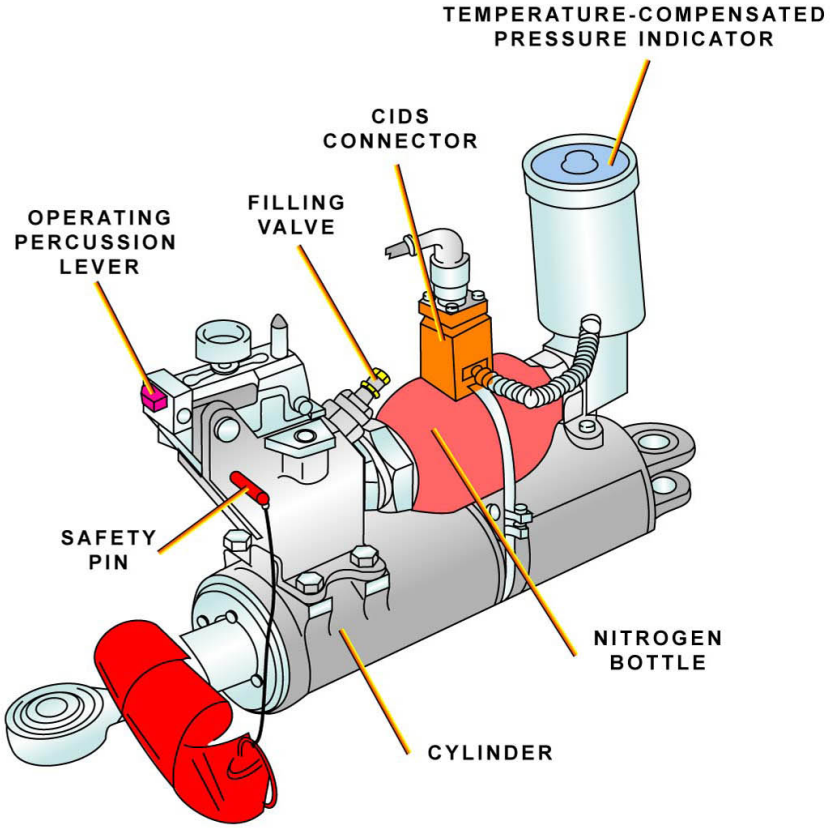


WITHOUT TEMPERATURE-COMPENSATED PRESSURE INDICATOR



WITH TEMPERATURE-COMPENSATED PRESSURE INDICATOR AND CIDS CONNECTOR

DOOR DAMPER FUNCTION & EMERGENCY FUNCTION

DAMPER/EMERGENCY CYLINDER DESCRIPTION (3)

CYLINDER DEACTIVATION

Several tasks have to be carried out to deactivate the door damper cylinder. To disarm the system:
- the safety pin must be installed,
- cut and discard the lock wire,
- loosen the knurled screw,
- pull the operating striker lever to the rear to disarm it,
- tighten the knurled screw.

CYLINDER ACTIVATION

Several tasks have to be carried out to activate the door damper cylinder.
To activate the system:
- loosen the knurled screw,
- push the operating striker lever to the front to arm it,
- tighten the knurled screw,
- safety the knurled screw with the lock wire,
- remove the safety pin.

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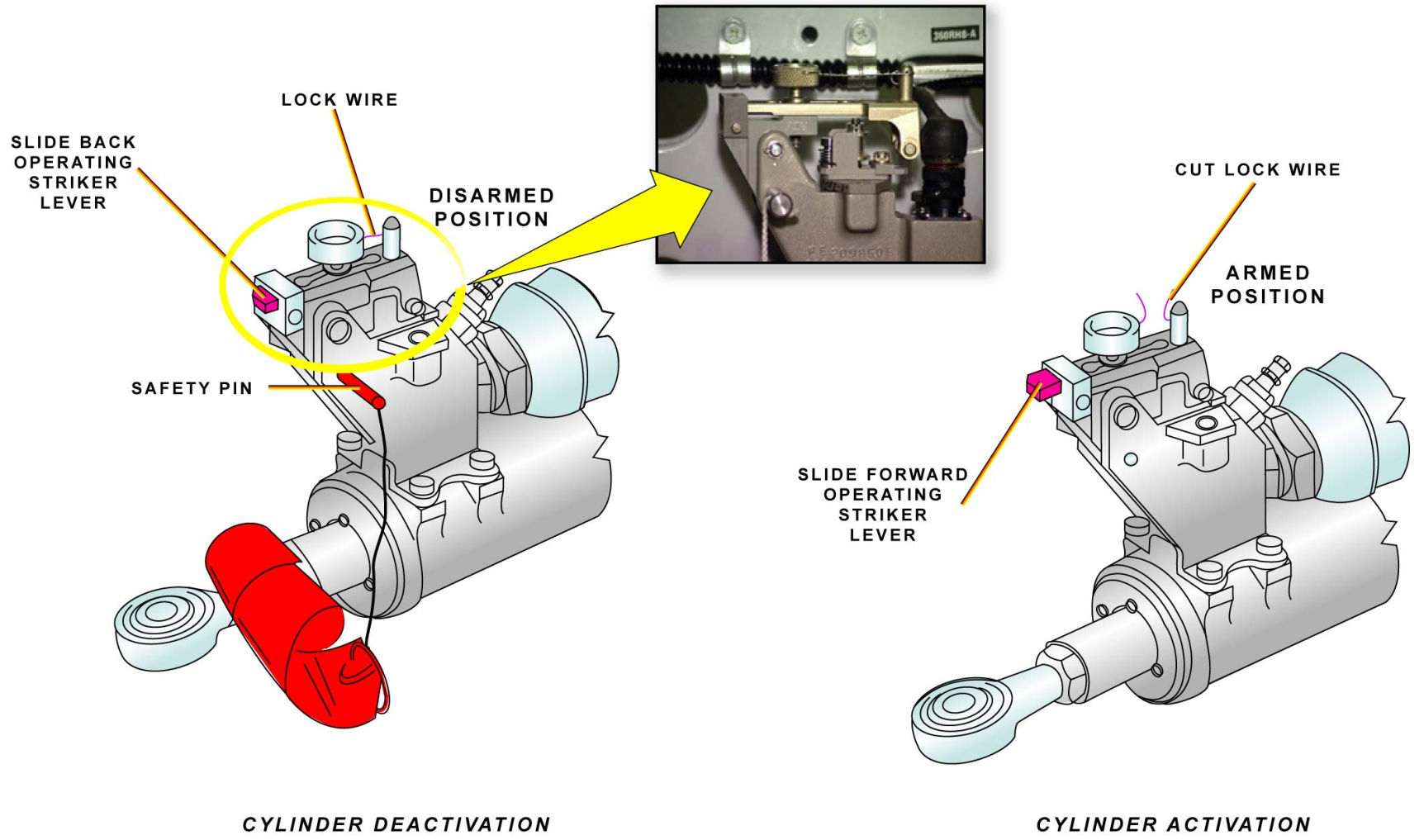

CYLINDER DEACTIVATION & CYLINDER ACTIVATION

DAMPER/EMERGENCY CYLINDER DESCRIPTION (3)

SERVICING

After an emergency operation of the door, the nitrogen bottle has to be refilled, using the filling valve. Remove the broken pieces of the shear pin and the damaged diaphragm after an emergency operation. Install a new shear pin and a new diaphragm.

NOTE: To fill the nitrogen bottle, take into account the temperature and pressure chart values, if the damper/emergency cylinder does not have a temperature-compensated pressure indicator.

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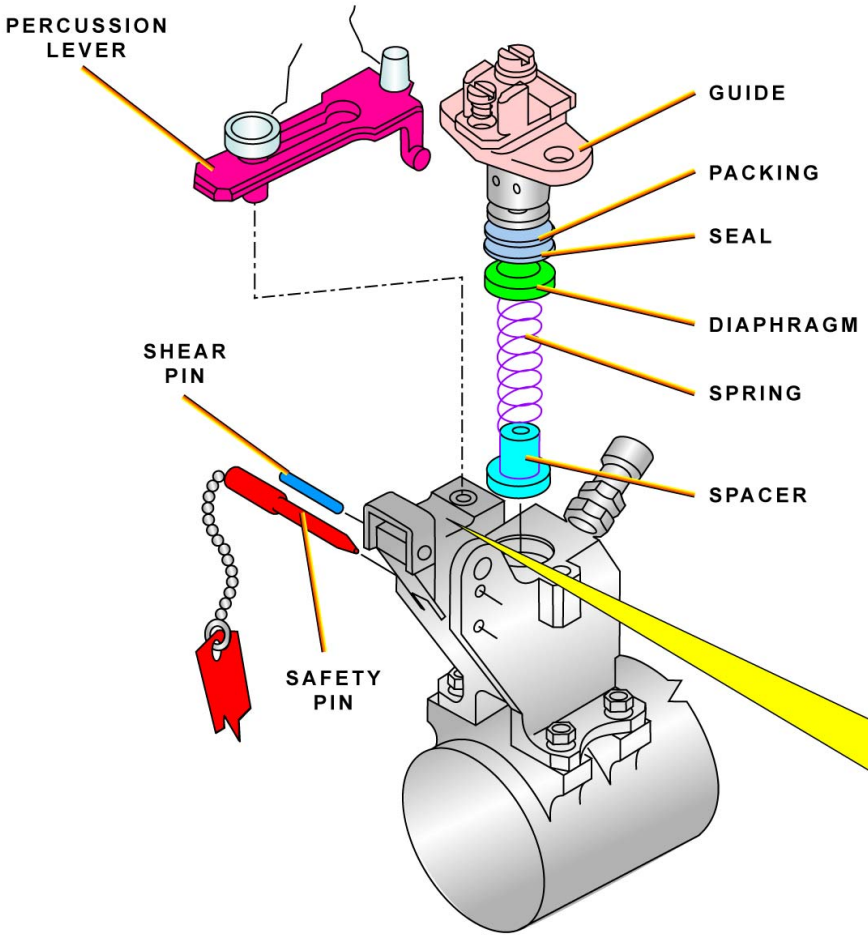

TEMP (°C)	PRESSURE (PSI±5%)
+50	1950
+40	1880
+30	1810
+20	1740
+10	1660
0	1610
-10	1540
-20	1465
-30	1395
-40	1325

SERVICING

DOORS OPERATION (2)

operation

Two emergency exits are located over each wing. The exits can be opened from the outside and the inside. Inside opening instructions are placarded on the exit frame. To open an exit, the cover flap must be removed. The "SLIDE ARMED" indicator illuminates white immediately. To unlock the latch mechanism, the control handle must be used. Pull down the control handle and pull the exit top inwards. With your free hand grasp the lower grip mould and lift the exit. Turn exit inward and throw it out away from the opening. Should the exit opening not initialize the automatic slide deployment, the red handle must be pulled for manual deployment. If a ditching line is provided, it has to be fixed to the yellow fittings located in the exit frame and on the wing.

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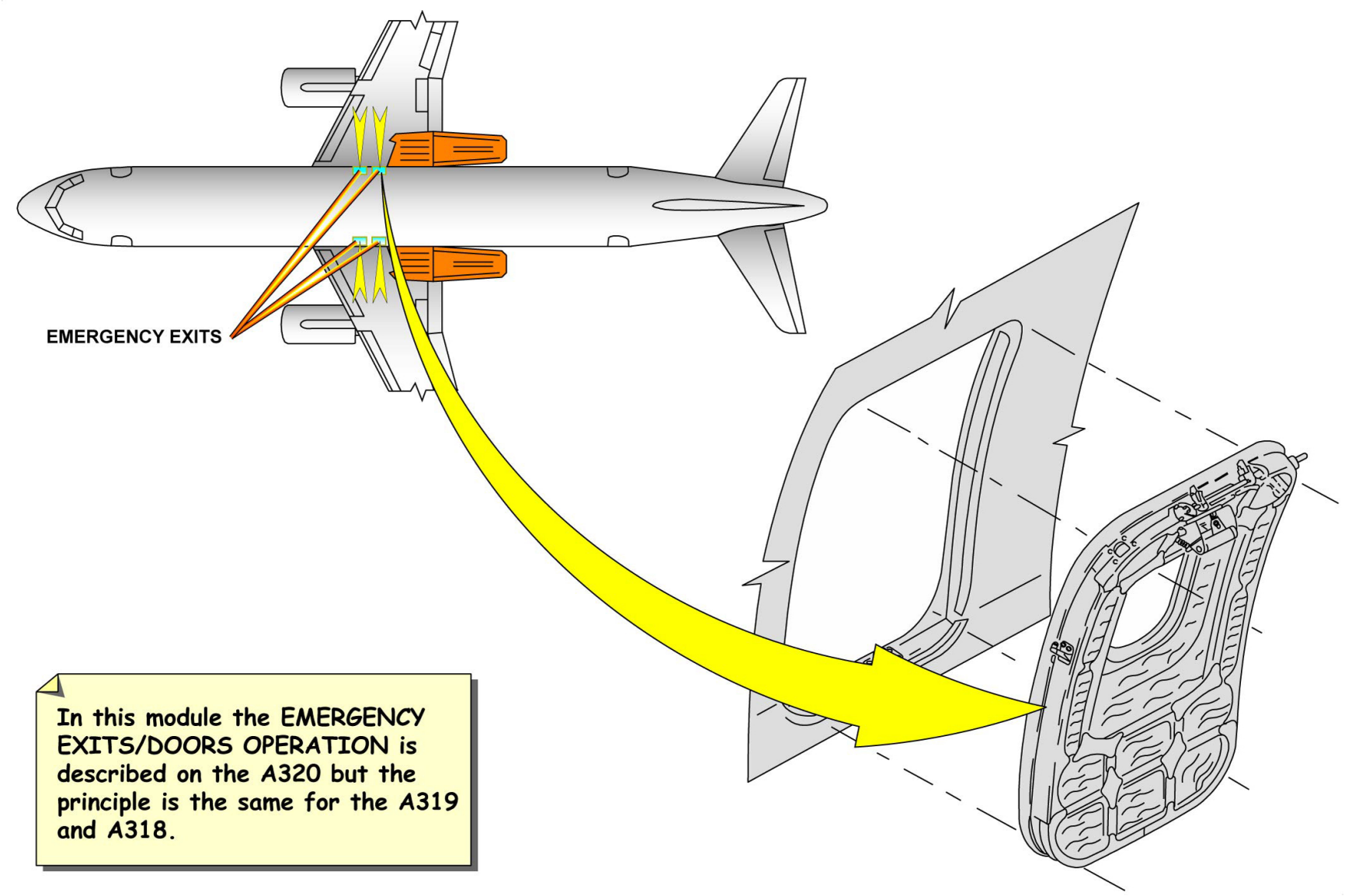
OPERATION


EMERGENCY EXITS
In this module the EMERGENCY EXITS/DOORS OPERATION is described on the A320 but the principle is the same for the A319 and A318.

OPERATION

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DOORS OPENING FOR MAINTENANCE (2)

WARNING

WARNING: MAKE SURE THAT THE LOCKPIN ASSEMBLY IS CORRECTLY INSTALLED IN THE OPERATING HEAD OF THE INFLATION RESERVOIR. IT PREVENTS AN ACCIDENTAL DEPLOYMENT OF THE OFFWING ESCAPE SLIDE.

NOTE: In this module the EMERGENCY EXIT/OPENING FOR MAINTENANCE is described on the A320 but the principle is the same for the A319 and the A318.

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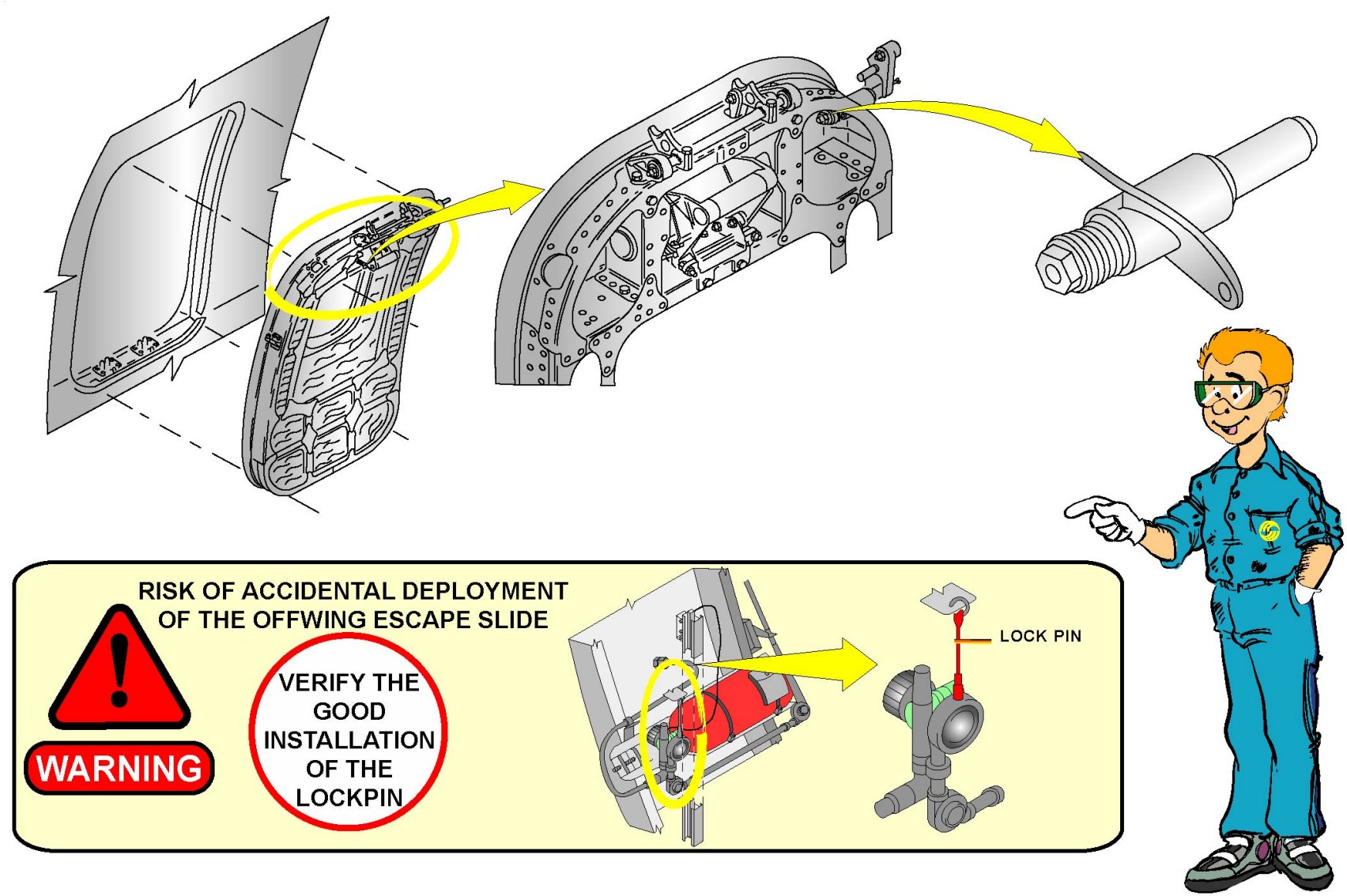
RISK OF ACCIDENTAL DEPLOYMENT
OF THE OFFWING ESCAPE SLIDE
WARNING
VERIFY THE
GOOD
INSTALLATION
OF THE
LOCKPIN
LOCK PIN

WARNING

DOORS OPENING FOR MAINTENANCE (2)

OPENING FOR MAINTENANCE

To open one of the two emergency exit hatches from the outside, a red panel has to be pushed in, the door falls into the cabin and activates the escape slide release mechanism. To open one of the two emergency exit hatches from the inside, pull down the cover flap from the recess. A slide armed indicator illuminates to show that the escape slide release mechanism is in the armed configuration. To disarm the mechanism, turn the retractable pin a quarter turn anticlockwise. This is confirmed by the extinguishing of the slide armed indicator. Pull the lever of the hatch control handle to the down position. Carefully let the top of the hatch fall inwards so that it comes clear of the structure. Take the lower handle and pull the hatch from the recess. A red manual handle can be used to activate the escape slide release mechanism manually. Install a rigging pin in the provision of the hatch frame. A ditching line attachment point housed in the door frame, and a dual point on the wing upper surface enable the ditching line to be connected.

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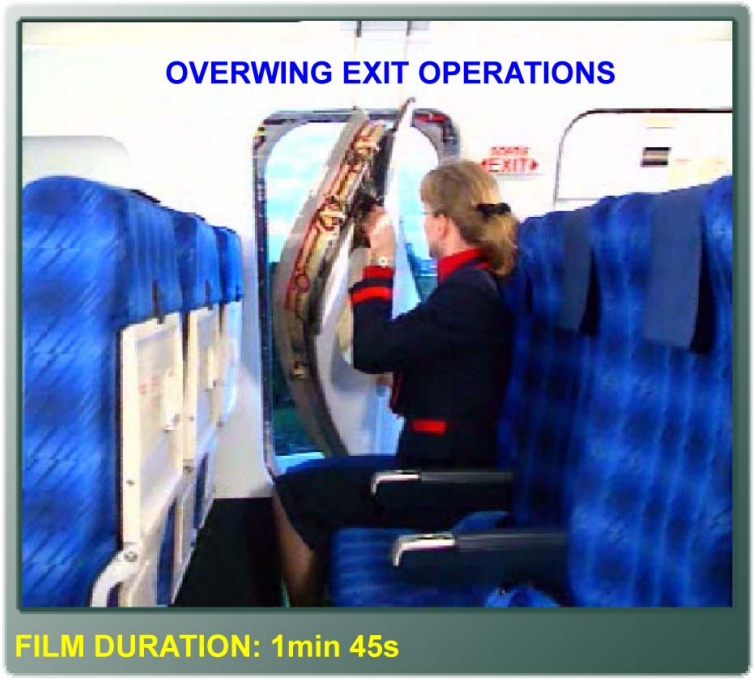

OPENING FOR MAINTENANCE

DOORS STRUCTURE DESCRIPTION (3)

OUTER SKIN

The outer skin of the hatch has to cover the cutout in the fuselage, the outer skin area is bigger than the area of the fuselage cutout. Thus the hatch is a pure plug type door. The pressure load on the hatch is transferred along the stop profiles via the seal into the fuselage skin. The material of the outer skin is aluminum alloy. Its thickness has been reduced locally by chemical etching for weight saving purpose.

HORIZONTAL BEAMS

The horizontal beams are acting as stiffeners for the outer skin, they prevent a large deflection of the outer skin. The horizontal beams are made from aluminum formed sheet metal.

FRAME SEGMENTS

Like the horizontal beams, the frame segments are acting as stiffeners for the outer skin. They are also made from aluminum formed sheet metal. It includes aluminum alloy formed sheet vertical frame segments.

INNER SKIN

The inner skin maintains the position of frame segments and horizontal beams and prevents them from buckling on the inside. The inner skin consists of several segments. These segments are made from aluminum formed sheet metal.

EDGE MEMBERS

The purpose of the edge members is to stiffen the skin at its edges and to maintain torsion stiffness of the exit door structure.

STOP PROFILES

When the passenger compartment is pressurized, the pressure loads are transferred into the fuselage structure via the two extruded stop profiles which are riveted to the vertical edge members. At the vertical stop profiles, the retaining channel is integrated in the extruded parts.

WINDOW

The structure includes an aluminum alloy forged frame, which is identical to a passenger window frame.

SEAL

The seal is retained by a formed sheet metal retaining channel, which is riveted to the hatch structure. The hatch seal is a fabric reinforced silicone rubber lip-type seal.

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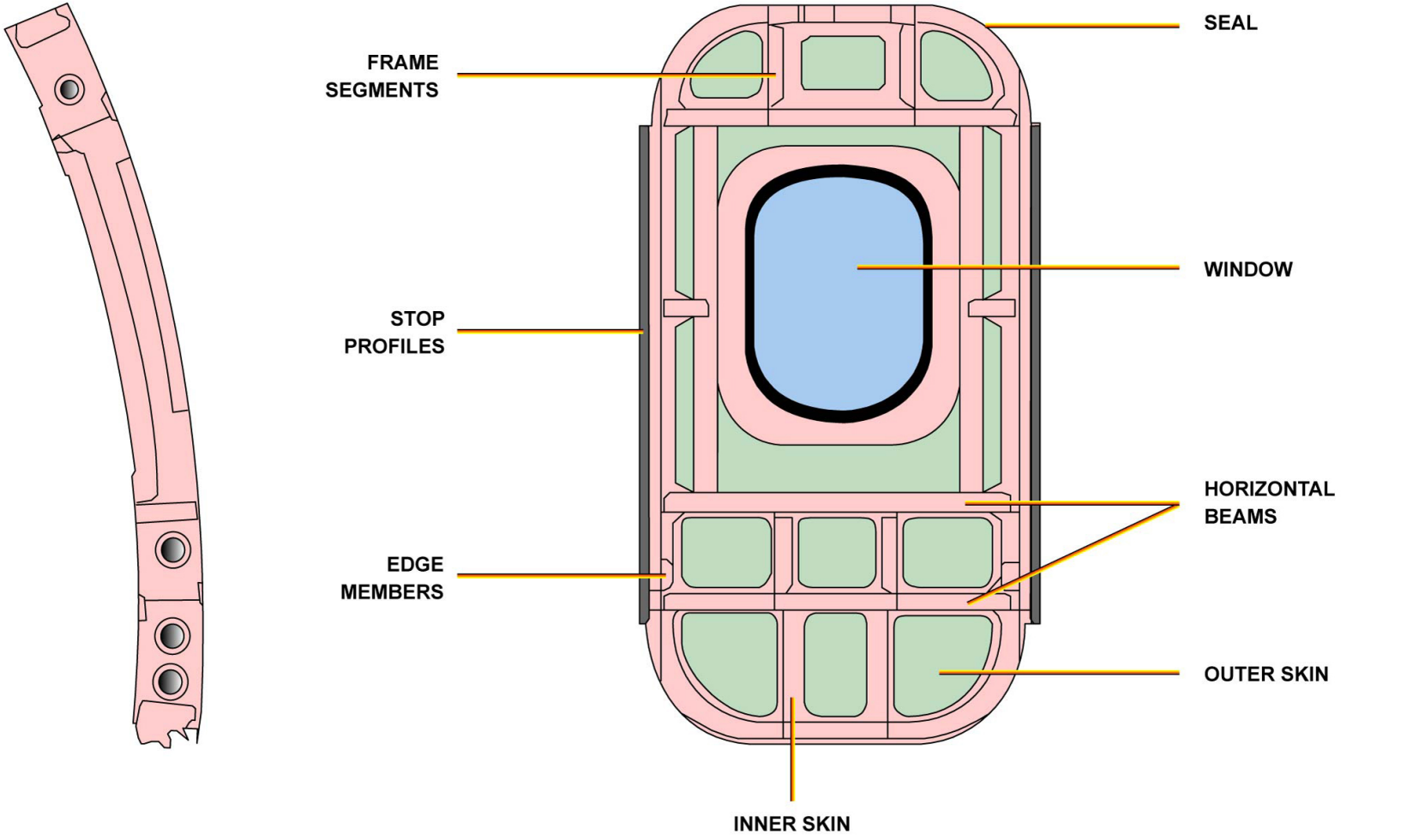


OUTER SKIN ... SEAL

LOCKING MECHANISM DESCRIPTION (3)

SLIDE RELEASE MECHANISM

The guide pin locks the spring-loaded latch pin. When the spring-loaded latch pin is extended it is in the ARMED position, and when the latch pin is retracted it is in the DISARMED position. The slide release mechanism includes the guiding fitting, the spring and the latch pin. For maintenance purposes, the latch pin can be disarmed by turning it counter-clockwise.

LOCKING SHAFT UNIT

The locking shaft unit includes the two locking hooks and the locking shaft. A connection rod attaches the hatch handle to the locking shaft.

CONTROL HANDLE

The hatch control handle has two tension springs which retain the handle in the up position. When the hatch control is released, the connection causes a movement of the locking shaft unit.

LOCKING HOOKS

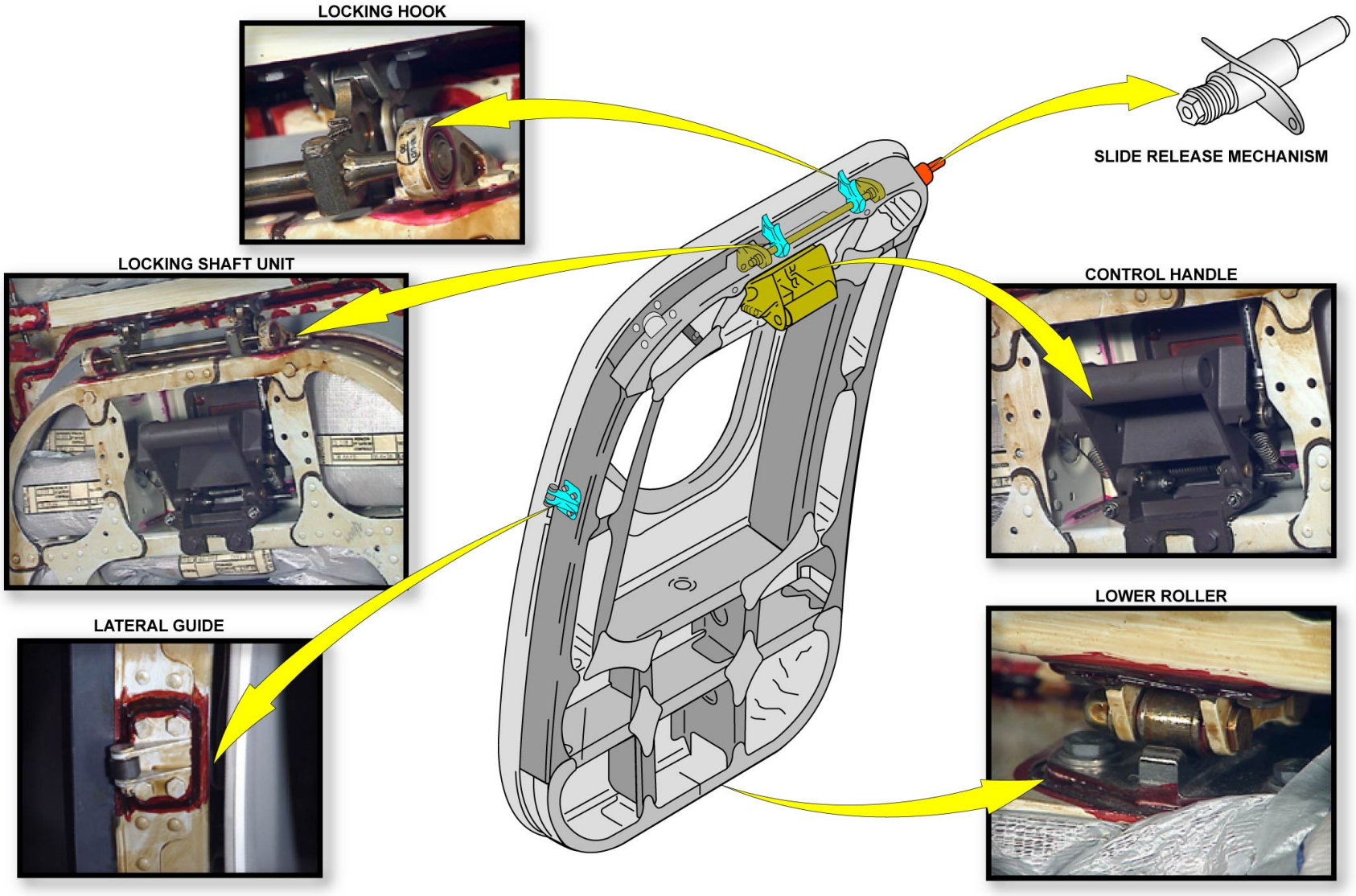
Inside or outside operation of the control handles locks or unlocks the hatch. When the emergency exit hatch is correctly locked, the locked hooks engage in the upper roller fittings.

LOWER ROLLER

The lower rollers put the emergency exit hatch in line with the fuselage during the installation. The lower roller brackets, attached on the hatch bottom beam, engage in their pivot fitting.

LATERAL GUIDE

The lateral guides put the hatch in the center position during the installation. A lateral guide fitting is attached on each vertical edge member of the emergency exit hatch.



SLIDE RELEASE MECHANISM ... LATERAL GUIDE

DOORS OPERATION (2)

DESCRIPTION/OPERATION

For the evacuation of the passengers, there are four emergency exit doors as well as four regular passenger/crew doors. Two emergency exit doors are installed on each side of the cabin, two FWD of the wing leading edge and two aft of the wing trailing edge. The operation is similar to that of the normal passenger doors. The FWD left emergency exit door is larger in size than the others and is known as a 73" door. The three other emergency exit doors are 60" doors. Door operation from outside or inside and in emergency is identical for all the emergency doors. The emergency exit door is installed with a support arm and two guide arms which maintain the door parallel to the fuselage in operation. The door mechanism is manually operated, it locks and keeps the door in the safety closed position. It also unlocks and lifts the door before you can move the unlocked door to the open position.

The primary components of the door locking mechanism are:

- the door handle mechanism,
- the locking shaft mechanism,
- the balance mechanism,
- the lifting mechanism.

The lifting mechanism will lock, unlock the door and operate the lifting mechanism. This moves the door up so that the lateral guide rollers come free from the fuselage guide fittings. A balance mechanism decreases the force necessary to operate the lifting mechanism. The door moves inwards, upwards and forward parallel to the fuselage and is locked by a mechanical lock in the open position. The door lock open mechanism is installed on the support arm. To close the door, operate the release button so that the spring-loaded linkage releases the locking hook.

The escape slide-release mechanism operates the automatic inflation system. There are two modes:

- the ARMED mode for the emergency door operation,
- the DISARMED mode for normal door operation.

The DISARMED mode allows the door to be manually opened without escape slide operation. When the door is opened from the inside of the cabin in the ARMED mode the emergency operation cylinder releases nitrogen to assist the door into its fully open position. The cylinder is shown in maintenance position with the safety pin installed. The escape slide-release mechanism operates the automatic inflation system to inflate the escape slide installed below the door. When the door is unlocked from the outside in the ARMED mode the escape slide-release mechanism is automatically DISARMED. The door damper hydraulically limits the speed of the door under normal operating conditions. Under emergency conditions the door damper acts as an actuator to open the door rapidly. To initiate emergency operation, the release lever is raised by door upward movement. The percussion mechanism breaks the diaphragm of the pressure accumulator and causes the nitrogen gas from the pressure accumulator to extend the actuator piston rod. A pressure gage and pressure switch are mounted on the pressure accumulator. The pressure gage has a red, yellow and green indicator area to show the actual pressure in the gas cylinder. The pressure switch relays a signal to the CIDS if pressure is low. Two proximity switches monitor the locked/unlocked condition and the DISARMED/ARMED condition of the door. One proximity sensor, which is part of the escape slide warning system, transmits a signal to the ECAM system. It gives a warning in the cockpit on the lower ECAM display panel when a door is opened in the ARMED mode. At the same time the white indicator light SLIDE ARMED located near the door window comes on. The other proximity sensor is part of the door warning system and also transmits a signal to the ECAM system. It shows on the lower ECAM display panel, when the door is unlocked. An additional proximity sensor and target is installed in the fuselage above the door. This sensor is part of the door warning system and monitors the OPEN/CLOSE position on the ECAM page. Now is shown the door ECAM page, door 1 LH side locked and slide armed. All the doors in green are locked and in amber open. The red warning light CABIN PRESSURE near the window flashes on ground if the door is in

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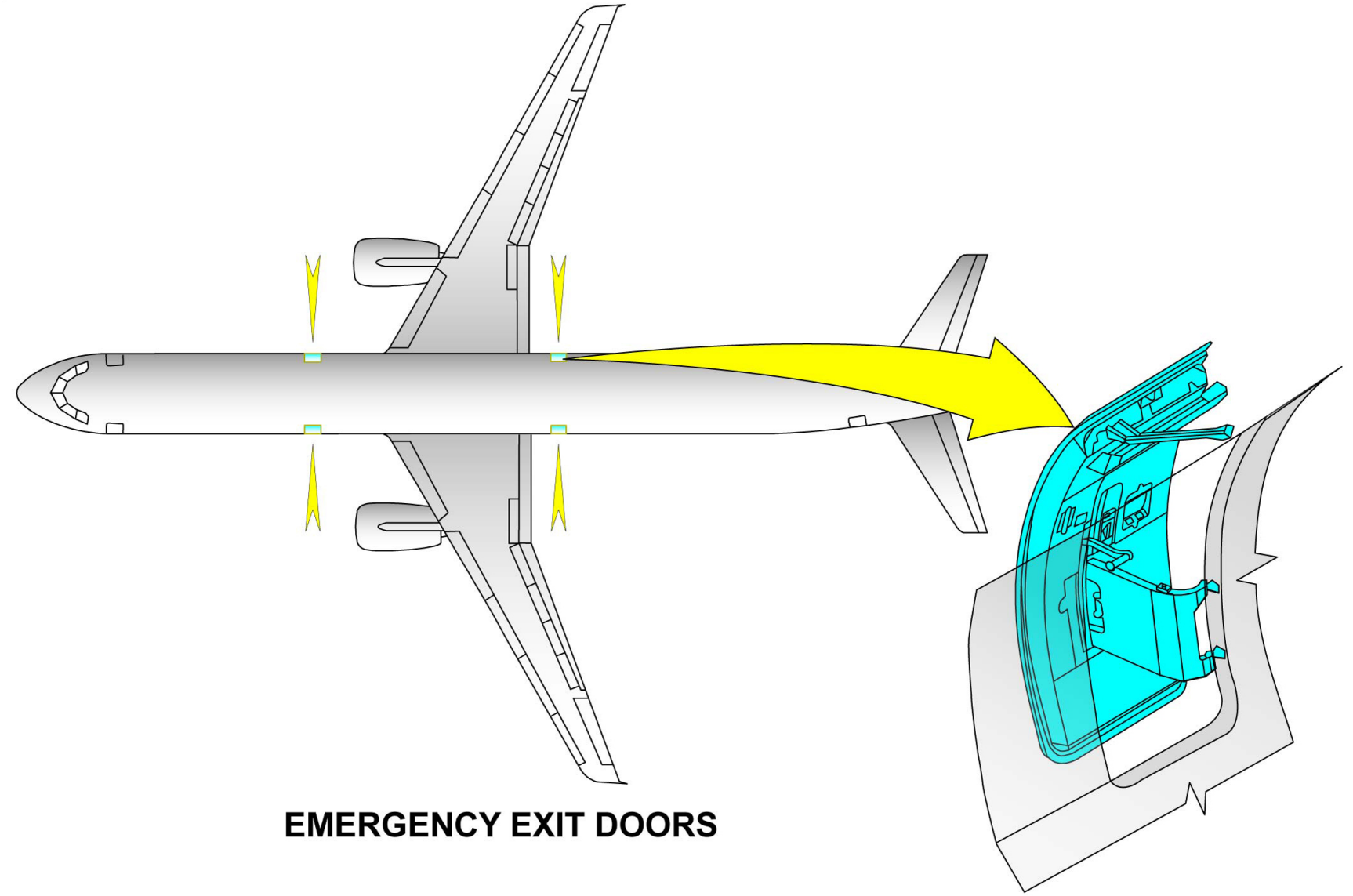
DISARMED mode and there is a difference between the inside and outside pressure with the two engines off. Before opening the door, check warning lights. Now we will show the emergency exit door in more detail.
The structural door components are made of aluminum alloy, they are riveted together to give the door its rigidity. Integrated in the door skin is the exterior handle and window. The door has two hoisting points integrated in the frame segments above the door centerline. The door seal is an extruded rubber seal profile with equally-spaced pressurization holes. When the cabin is pressurized, the door seal inflates and makes the door pressure-tight. Blankets are installed in the interspace of the primary structure for sound and thermal protection. They are attached with Velcro tapes on the inner face of the outer skin.
The primary components of the escape slide-release mechanism are:
- the arm/disarm unit,
- the release assembly.

Here is shown the operation of the components. The doorstop assemblies include the adjustable stops and the related stop fittings. The guide assembly contains the guide rollers and the related guide fittings. Here we see its operation during door movement.

DESCRIPTION/OPERATION



DESCRIPTION/OPERATION

DOORS STRUCTURE DESCRIPTION (3)

OUTER SKIN

The outer skin covers the door cutout area in the fuselage skin. When the cabin is pressurized, the outer skin carries the whole internal pressure on this area.

LONGERON

The horizontal longerons are stiffening elements for the outer skin and there are vertical frame segments. They also act as load concentrators: the pressure load on the skin is concentrated on the ends of the seven horizontal longerons, where the door stops are located. Longerons and outer skin edge members are riveted together.

DOOR STOPS

The loads resulting from the cabin pressure are transmitted by adjustable stops into the door frame and into the fuselage structure. The door stops are made from forged titanium.

GUIDE ROLLERS

The guide rollers, mounted on the door frame, guide the door movement precisely from its lifted to its lowered position and vice versa, preventing any unintended collision. They move within the guide ramps, which are mounted on the fuselage frame. Guide rollers and guide fittings also block the door in the closed position. The guide rollers engage in a ramp to block the door. Two additional guide rollers, located only on the aft edge of each door, prevent door jamming when loaded with extreme forces.

SEAL

The door seal consists of a rubber extrusion with equally spaced pressurization holes. The door seal is installed around the edge of the door and a sealing section is fitted onto the door frame.

WINDOW

The observation window permits the door warning to be checked from outside.

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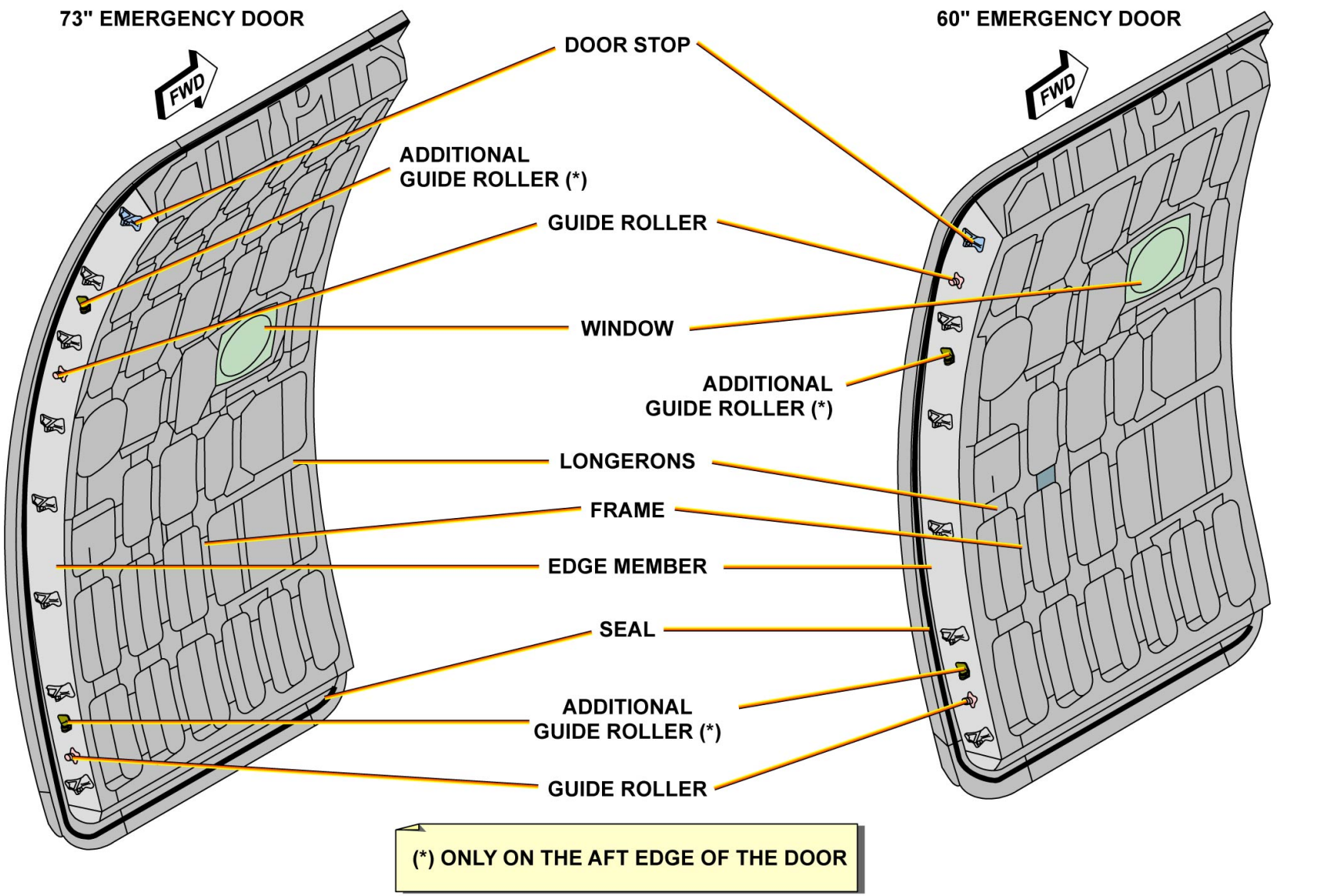

OUTER SKIN ... WINDOW

LOCKING MECHANISM DESCRIPTION (3)

GENERAL

The door locking mechanism, which is manually operated, locks and keeps the door in the safety closed position, and lifts it when the door is moved to the open position.
It is composed of:
- the door handle mechanism,
- the locking shaft mechanism,
- the balance mechanism,
- the lifting mechanism.

DOOR HANDLE MECHANISM

The door handle mechanism is composed of the inboard handle assembly and the outboard handle assembly. The inboard handle and the outboard handle are connected to the internal control shaft and operate the locking shaft mechanism and the lifting mechanism. The control mechanism disarms the slide release mechanism when the external handle is moved.

LOCKING SHAFT MECHANISM

The locking shaft is locked in an overcentered position. An arm on the locking shaft forms the visual locking indicator. The locking shaft is connected to the locking hook by a connection rod. A spring unit is installed between the twin lever and the door structure. It makes sure that the locking shaft mechanism is always in the overcentered position.

BALANCE MECHANISM

The balance mechanism is installed in the lower section of the door. It is composed of the torsion bar assembly, the pretension unit and the connection rod.

LIFTING MECHANISM

The lifting mechanism is installed in the lower section of the door. It is composed of the lifting shaft assembly, the door detent shaft and the adjustment lever unit.

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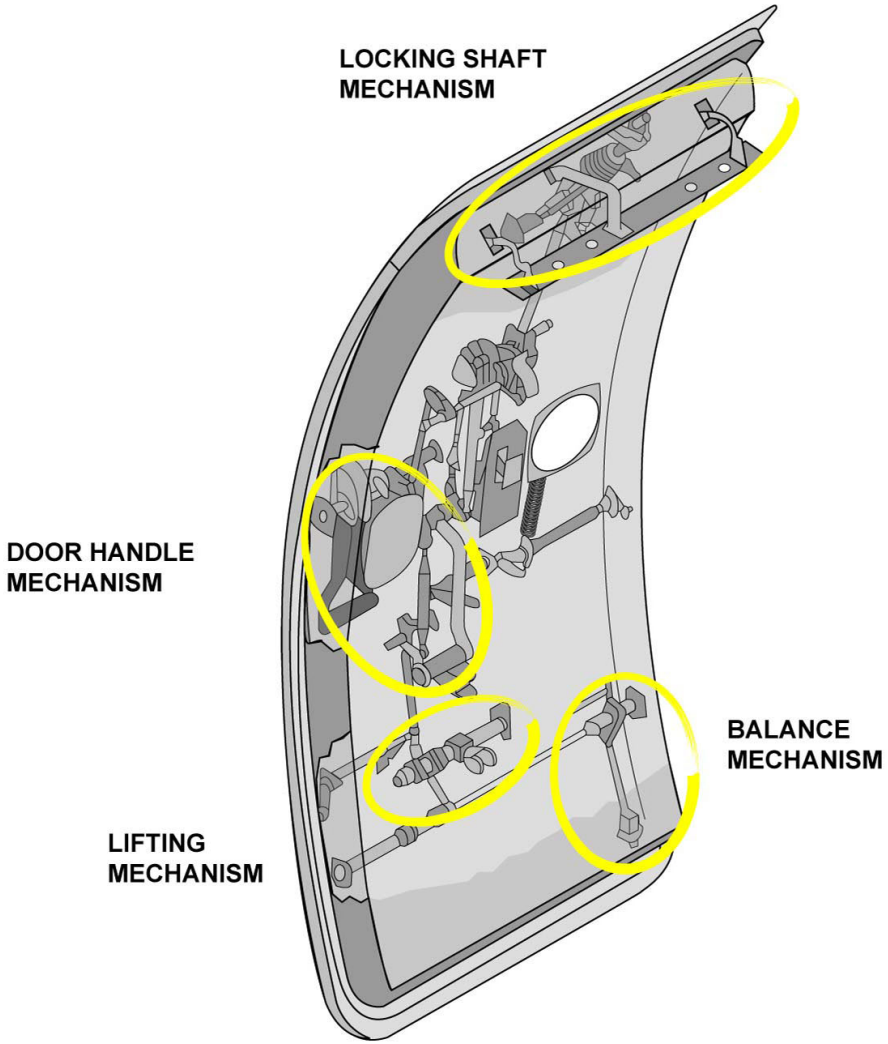

GENERAL ... LIFTING MECHANISM

NORMAL OPERATION (2)

NORMAL DOOR OPENING

NOTE: In this module the CARGO DOORS/NORMAL OPERATION is described on the A320 but the principle is the same for the A318, A319 and A321.

The cargo door is mechanically locked and operated by the yellow hydraulic system. The door opening operation procedure is displayed next to the door controls. Let's open the door in normal conditions. To operate the door handle, push the spring-loaded flap inwards to release the handle. When the handle rotates the locking shaft, it moves the cam of the latches, shows the red indicators retracting, retracts the side pins and opens the vent door. Pull the door handle outwards and up to the fully UNLOCKED position. Check that the vent door opens to make sure that there is no residual pressure in the cargo hold before the door is unlatched. Check that the locking indicators are red, indicating that the locking hooks are released and the door is unlocked. Due to internal leakage and the door weight, the door can open towards its vertical position. Open the access panel below the fuselage to get access to the door hydraulic control system. Check the door "OPEN" green indicator by pressing it. The light comes on. Set the selector on the control panel to "OPEN" and hold it in this position. The door is opened using two hydraulic actuators pressurized by the yellow electric pump. When the door is in the "FULLY OPEN" and locked position, the green indicator,comes on. Release the control lever. The yellow pump remains operative for a certain amount of time.

NORMAL DOOR CLOSING

To close the cargo door hydraulically (if the cargo loading option is installed), make sure that the door sill latches are in the raised position and that all required safety devices are supplied. Set the control selector to "CLOSE". The yellow hydraulic pump starts operating - it pressurizes the actuators and unlocks the door. The green indicator light goes off and the door closes. When the door is in its frame, release the control selector. The yellow electric pump remains operative for a certain amount of time. Lock the door before it is able to open again due to internal leakage and the door weight. Pull the door handle down to its "LOCKED" position, push it into the recess of the door structure and check that the locking indicators are green and that the door is flush with its door frame. Check that the vent door is closed. The spring-loaded flap locks the control handle. Check that access panels are closed.

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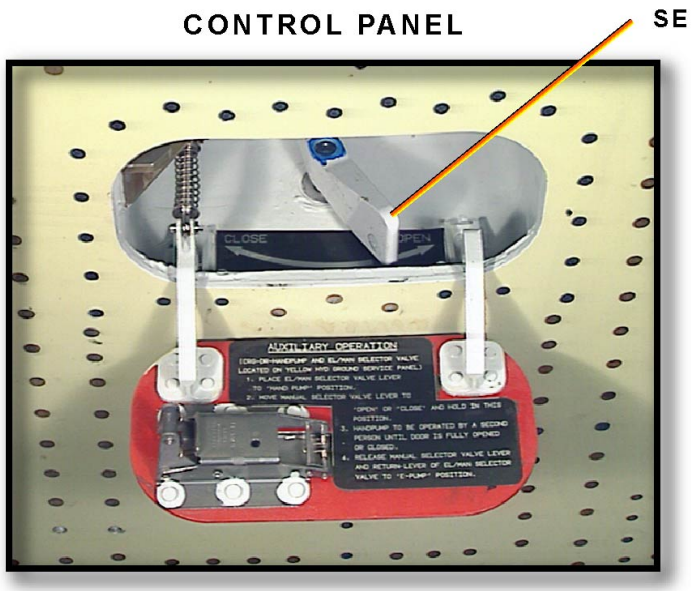
NORMAL DOOR OPENING & NORMAL DOOR CLOSING



AFT CARGO DOOR

NORMAL DOOR OPENING & NORMAL DOOR CLOSING

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MANUAL OPERATION (2)

MANUAL DOOR OPENING

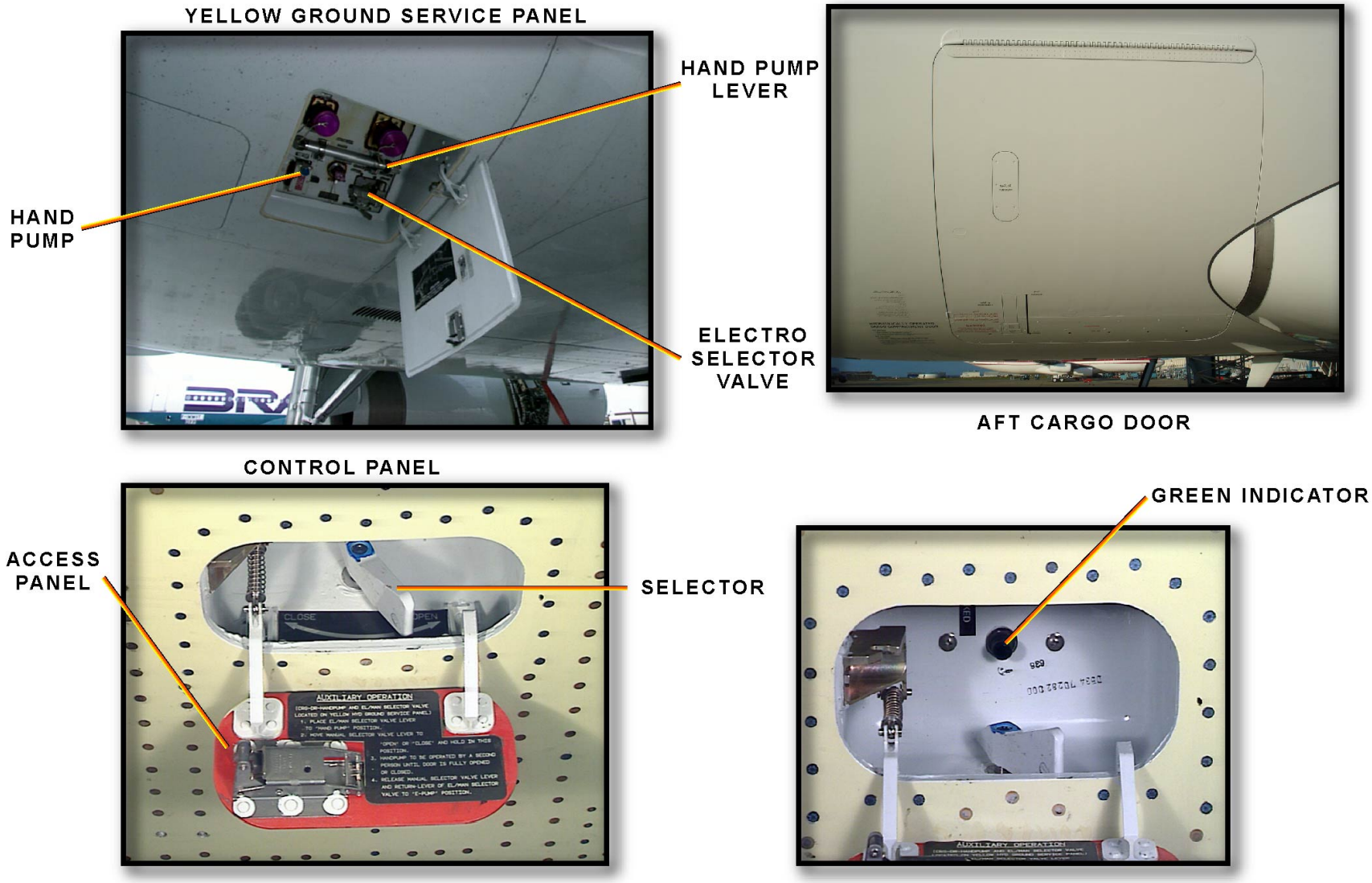
NOTE: In this module the CARGO DOORS / NORMAL OPERATION is described on the A320 but the principle is the same for the A319, the A321 and the A318.

Here two operators are required. The first one unlocks the cargo door in the same manner as for normal operation. The second operator opens the yellow ground service access panel. Unlock the hand pump control handle quick locking fasteners. Pull out the hand pump control handle and set it in the operating mode. Install the hand pump control handle on its pump. The first operator must hold the selector in the OPEN position. Then, the second operator operates the hand pump and the door opens. When the green indicator light comes on, the first operator releases the control selector.

MANUAL DOOR CLOSING

Two operators are required for this operation. The first will set the control selector to its CLOSE position and hold it. The other, then operates the hand pump. When the door is engaged in its door frame, return the hand pump control lever to its stowage position. Lock it and close the access control panel. The first operator closes the access panel and sets the door handle to its LOCKED position and checks that the locking indicators are green.

MANUAL DOOR OPENING & MANUAL DOOR CLOSING



MANUAL DOOR OPENING & MANUAL DOOR CLOSING

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BULK CARGO DOOR OPERATION (A320/A321) (2)

bulk cargo door operation

The bulk cargo compartment door is installed on the lower right side of the fuselage. The bulk door is a manually operated door, the operating procedures are labeled on the door. To open the bulk door from the outside, press the button of the external handle. Set it to its OPEN position, then to its LOCKED position again. This operation releases the closed bulk door, then move manually the bulk door inwards until the hook engages with the hook arrester of the fuselage crossbeam. This operation safeties the bulk door in its fully open position. To release the opened bulk door, put the handle to its OPEN position. A balance mechanism prevents the bulk door from falling down. Pull the bulk door closed and lock it using the external handle by setting it to the LOCKED position. After operation from the outside, push the external handle into its recess again.

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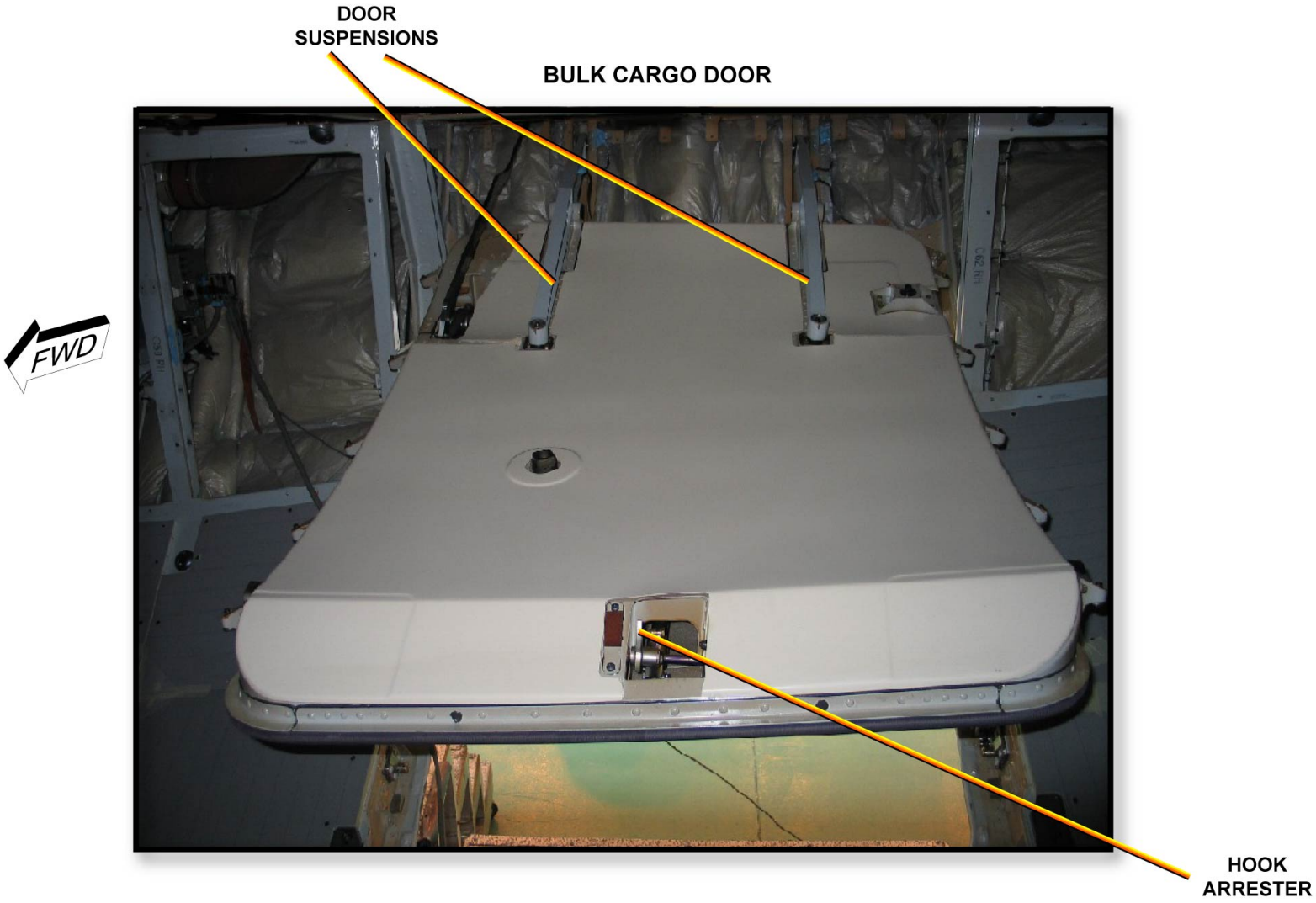
BULK CARGO DOOR OPERATION



BULK CARGO DOOR OPERATION

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FWD & AFT CARGO DOOR STRUCTURE DESCRIPTION (3)

MAIN STRUCTURAL COMPONENTS

The door is made of sheet metal and machined parts. Note the position of the hoist points. The primary structure consists of vertical and horizontal edge members, longitudinal beams, frames, and an inner and outer skin. All these parts are riveted together.

DOOR SEAL RETAINER

The door seal is a round hose-type seal and made of silicone and fabric. When the cargo doors are locked, the door seal makes the related compartment pressure-tight. For attachment of the door seal, the retainers are riveted to the edge members around the cargo door.

HINGES AND FITTINGS

The connection of the cargo door to the fuselage includes the two halves of the titanium and aluminum alloy piano hinges, and two hinge pins for the actuators. The actuator attachment fitting is attached with screws to the inboard side of frames 25A / 53A, and 26A / 54A. The FWD and AFT cargo doors are structurally the same, but they are not interchangeable.

NOTE: Note that, on the A318 the vent door is located near to the door handle.

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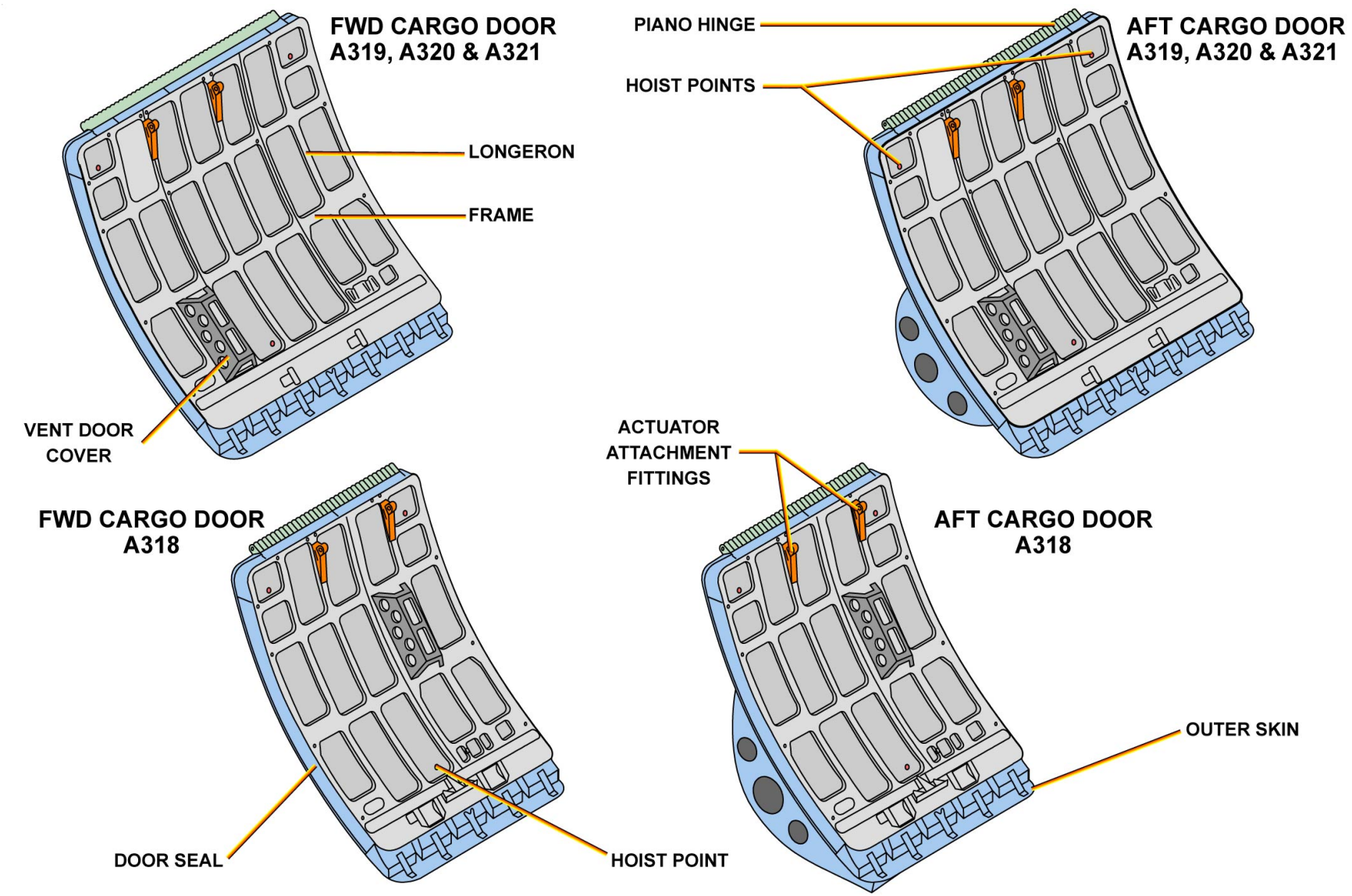

MAIN STRUCTURAL COMPONENTS ... HINGES AND FITTINGS

FWD & AFT CARGO DOOR LOCKING MECH D/O (3)

LATCHING SHAFT

The latching shaft, which is connected to the operating handle by an adjustable rod, operates all the hooks. It is the main part of the locking mechanism.

LOCKING HOOK

In the closed and locked position, the hooks are in contact with the fuselage slide spools and eccentric bolts and transmit the loads resulting from the internal pressure and circumferential fuselage loads. The hooks fulfill the latching of the cargo door to the fuselage.

LOCKING SHAFT

When the locking handle is in the LOCKED position, the locking shaft turns and the safety cams move into the recess of the locking hooks. The locking shaft is the main part of the safety mechanism. It is actuated by the operating handle.

CAM

The cam is fastened on the locking shaft and blocks the hooks in the locked position.

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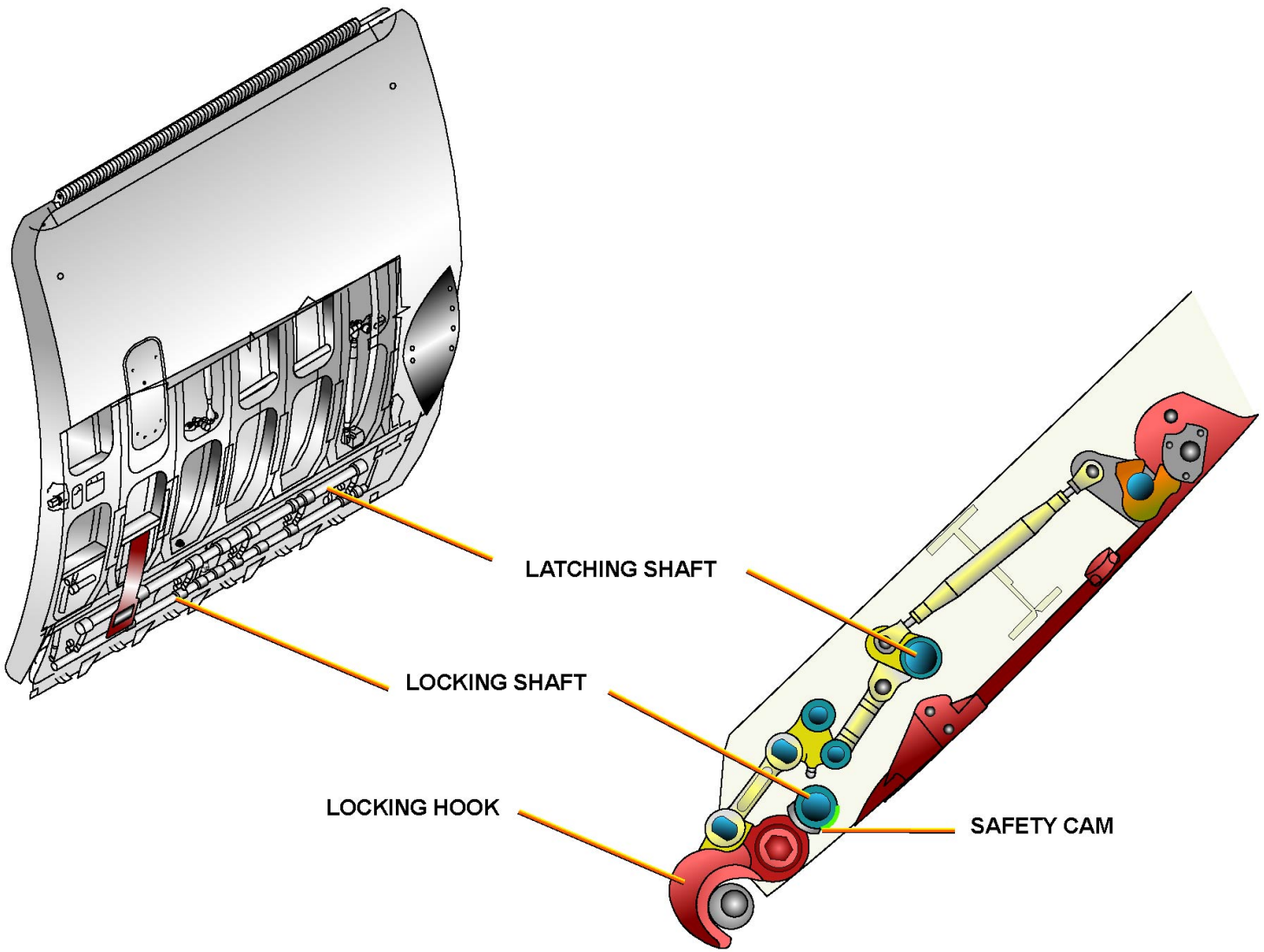

LATCHING SHAFT ... CAM

FWD & AFT CARGO DOOR LOCKING MECH D/O (3)

UNLOCKING AND UNLATCHING OPERATION

The unlocking and unlatching operation may be described in three positions.

LOCKED POSITION

Green marks are visible through the locking indicators. The door cannot be opened because the locking shaft is in the locked and the hooks are in the latched position.

UNLOCKED POSITION

Red marks are visible through the locking indicators. The locking shaft is in the unlocked position but the hooks are still in the latched position, so the door cannot be opened.

UNLATCHED POSITION

Red marks are still visible through the locking indicators. The latching shaft and the hooks are in the unlatched position, so the door can be opened.

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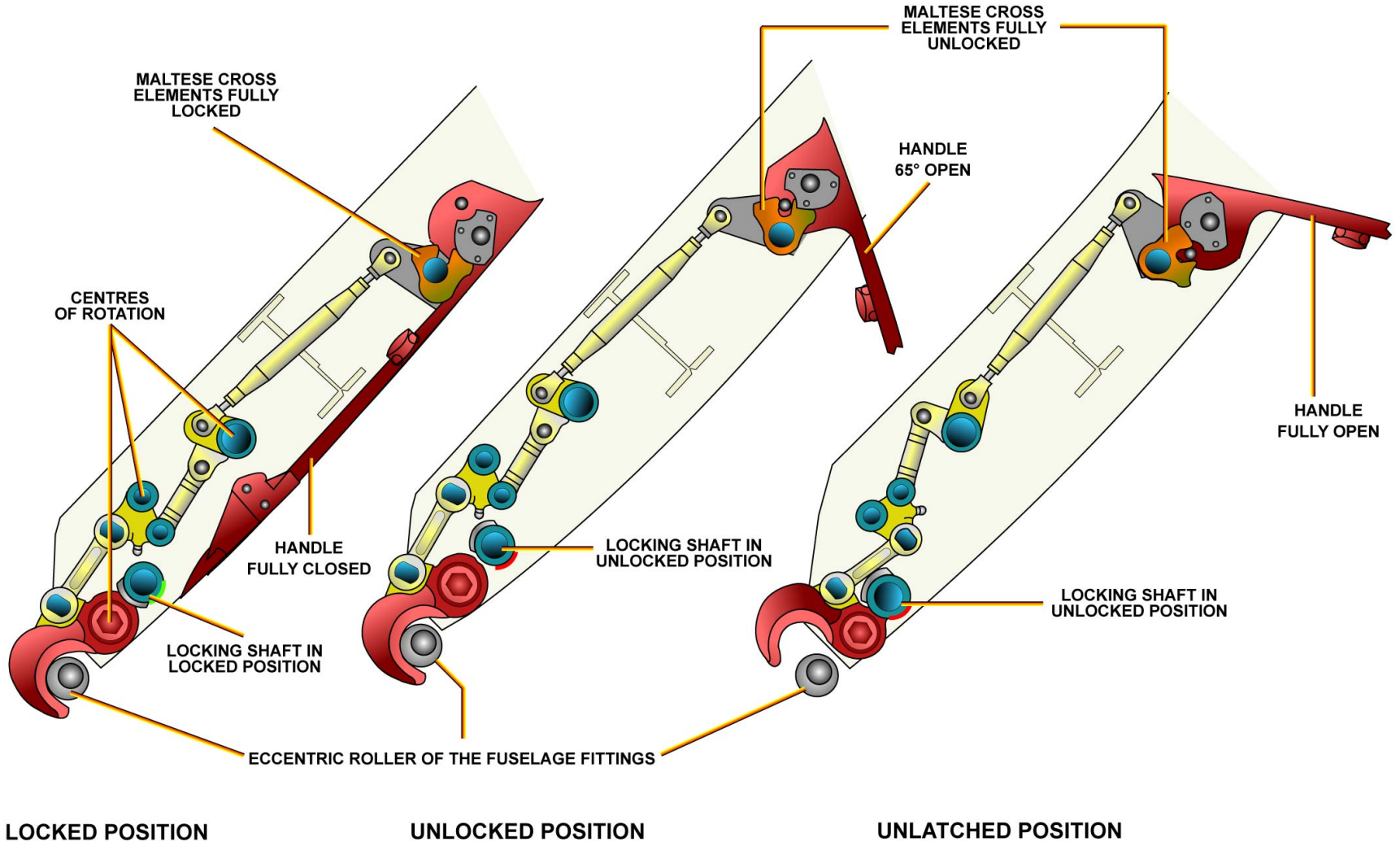

UNLOCKING AND UNLATCHING OPERATION - LOCKED POSITION ... UNLATCHED POSITION

FWD & AFT CARGO DOOR LOCKING MECH D/O (3)

DRIFT PIN

To fulfill aerodynamic requirements, a drift pin mechanism has been provided in the door. Two drift pins are operated by the locking shaft via rods. The extended pins move into the fuselage side frame pockets.

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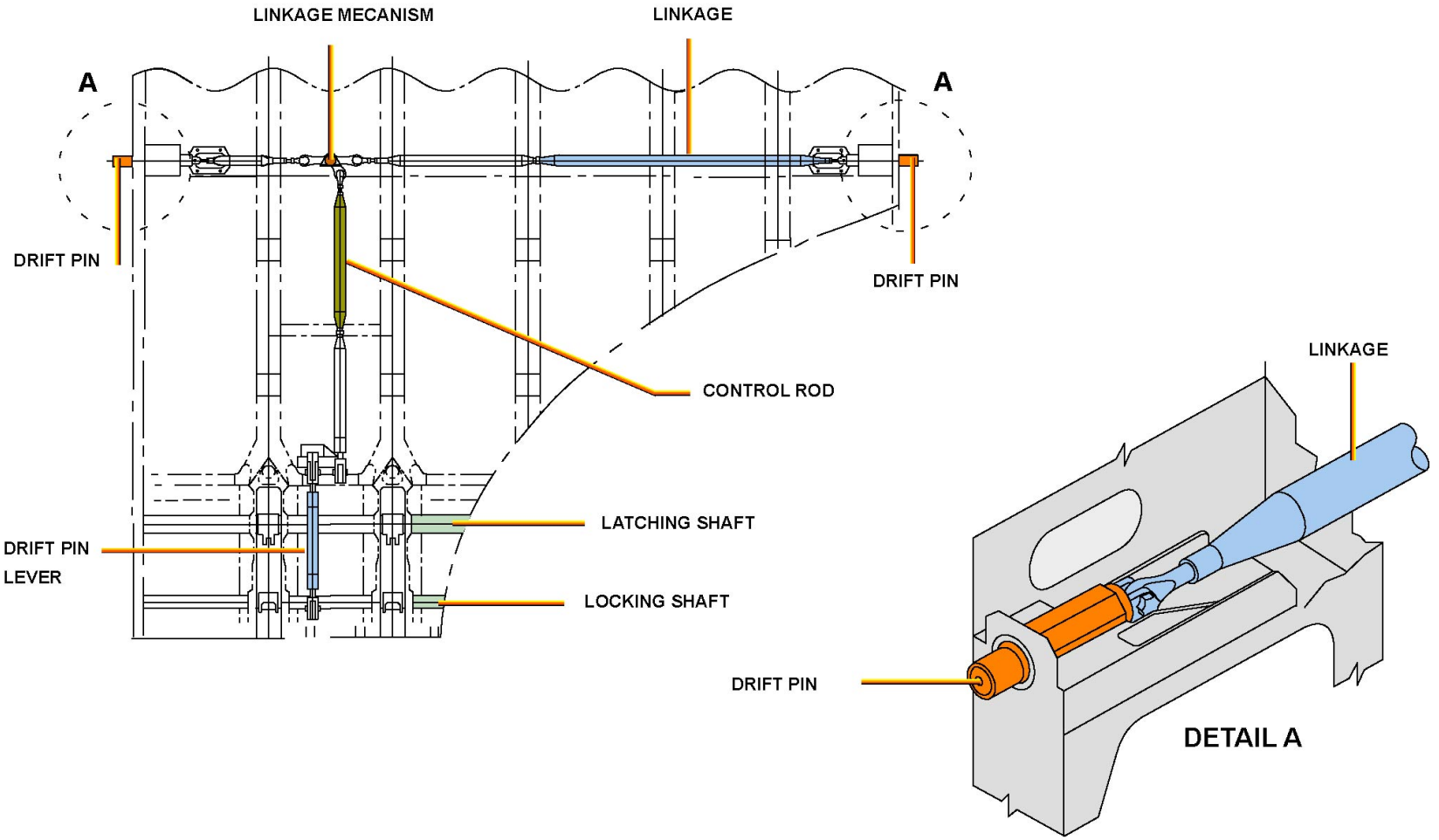
LINKAGE MECANISM
LINKAGE
A
A
DRIFT PIN
DRIFT PIN
CONTROL ROD
LATCHING SHAFT
DRIFT PIN
LEVER
LOCKING SHAFT
LINKAGE
DRIFT PIN
DETAIL A

DRIFT PIN

FWD & AFT CARGO DOOR LOCKING MECH D/O (3)

INTERLOCK MECHANISM

The interlock mechanism blocks the latching mechanism in the unlatched position when the cargo door is not closed. Then the door handle is not movable and the latching hooks stay in the lifted position. The interlock mechanism includes the interlock lever with the stop bolt, the connection rod and the spring unit. The spring unit moves the interlock lever to the blocked position so that its stop bolt touches the interlock cam.

SWITCH MECHANISM

The switch mechanism is installed in the lower part of the cargo door. This mechanism includes the target lever with the related target and the link assy. The target lever is attached on the support fitting which is riveted on the frame structure. The link assy transmits the movement of the drive shaft to the target lever. The target moves to or away from the proximity sensor which is installed below the door sill of the fuselage. The proximity sensor monitors the position of the cargo door. It sends information to the ECAM system when the cargo door is closed or opened.

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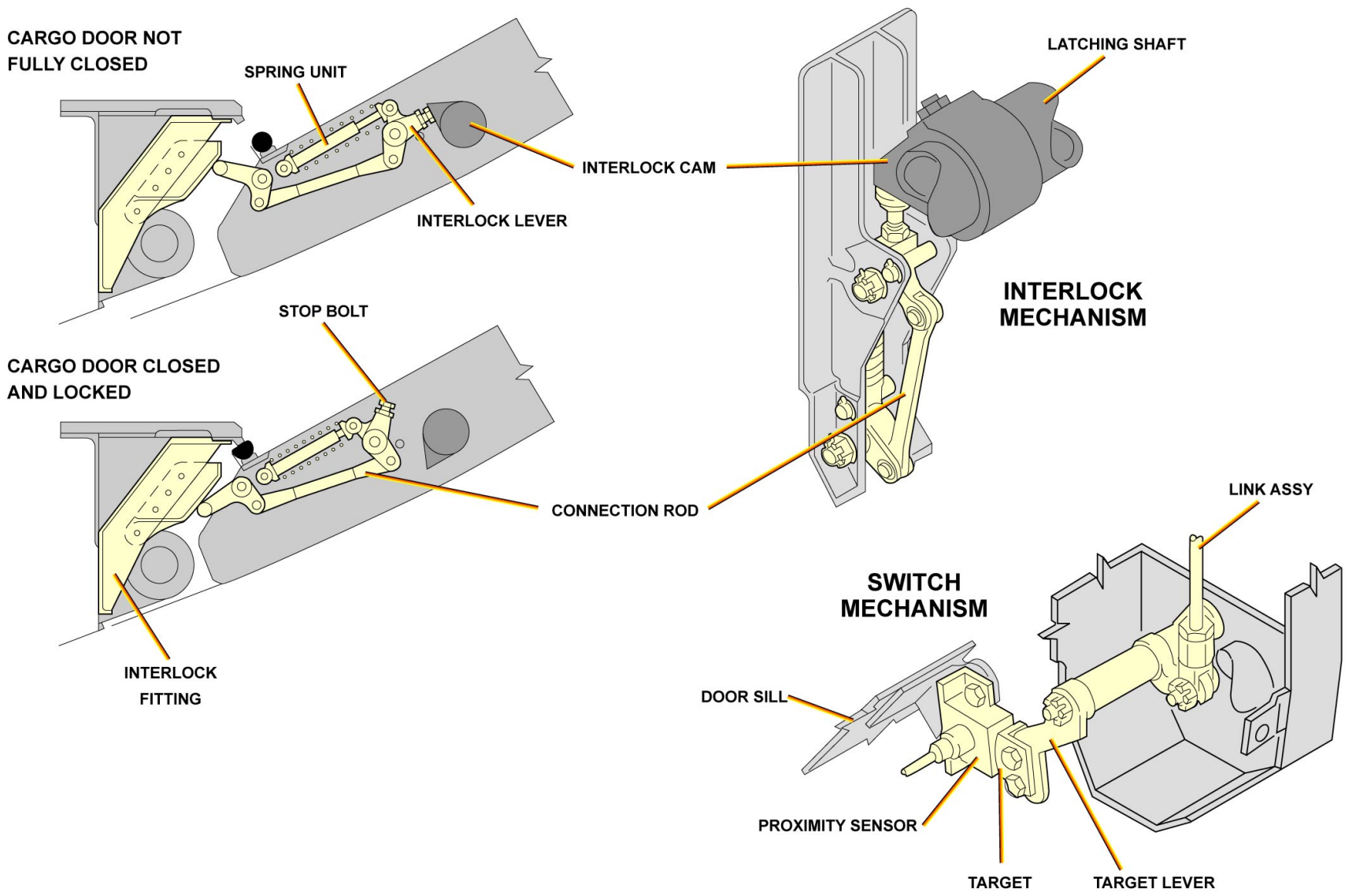

INTERLOCK MECHANISM & SWITCH MECHANISM

HYDRAULIC SYSTEM D/O (3)

GENERAL

The cargo-compartment door hydraulic-system controls the operation of the FWD and aft cargo-compartment doors. The hydraulic system of each door has a hydraulic actuator and a manual selector valve, but the yellow electric pump, the electric selector valve, the hand pump and the double check valve are common to both cargo doors.

NOTE: The double check valve depressurizes the cargo door system after operation and prevents loss of reservoir pressure and hydraulic fluid after a leak.

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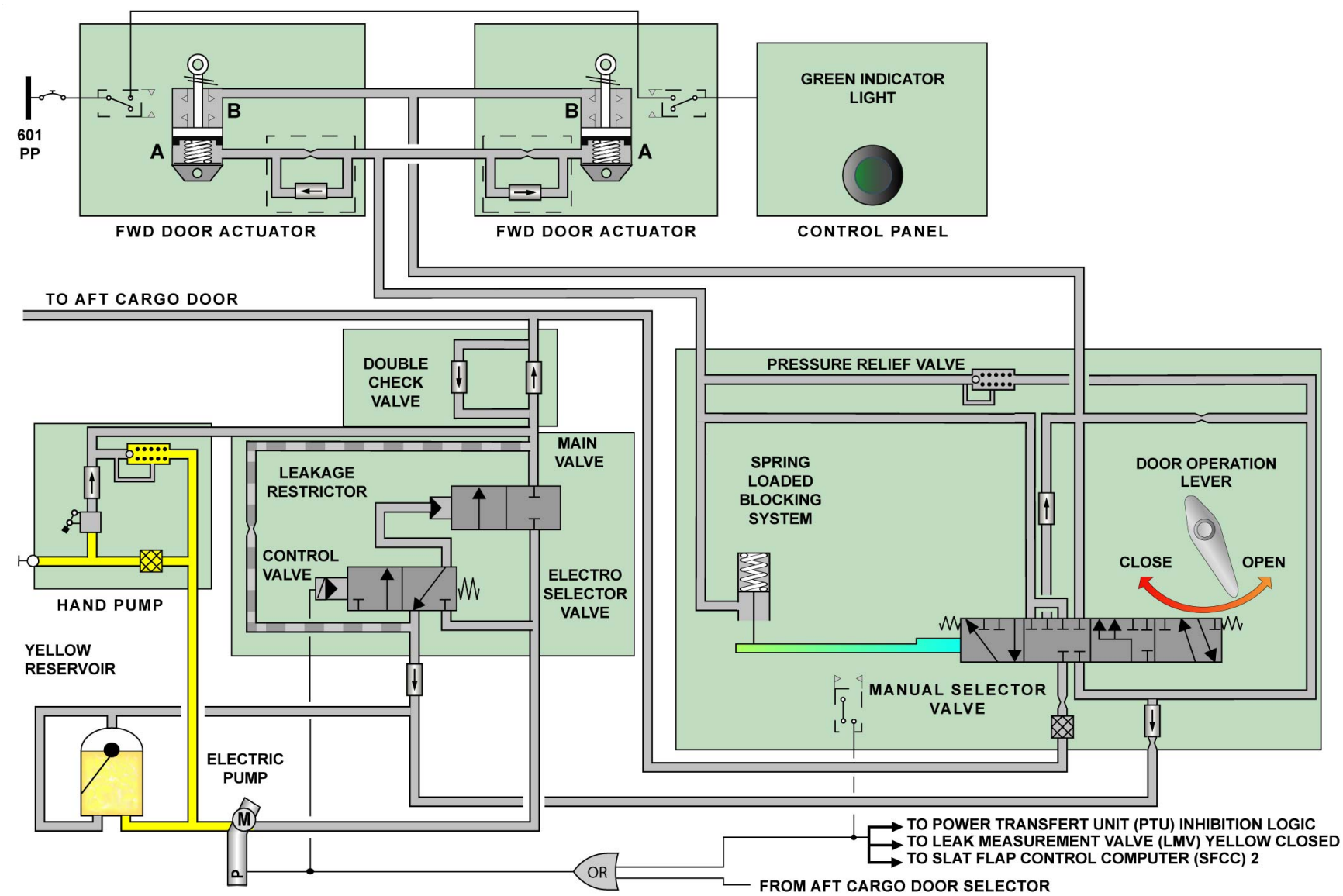
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PP
B
A
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FWD DOOR ACTUATOR
FWD DOOR ACTUATOR
GREEN INDICATOR LIGHT
CONTROL PANEL
TO AFT CARGO DOOR
DOUBLE CHECK VALVE
PRESSURE RELIEF VALVE
MAIN VALVE
LEAKAGE RESTRICTOR
CONTROL VALVE
ELECTRO SELECTOR VALVE
SPRING LOADED BLOCKING SYSTEM
DOOR OPERATION LEVER
CLOSE
OPEN
HAND PUMP
YELLOW RESERVOIR
MANUAL SELECTOR VALVE
ELECTRIC PUMP
M
P
OR
TO POWER TRANSFERT UNIT (PTU) INHIBITION LOGIC
TO LEAK MEASUREMENT VALVE (LMV) YELLOW CLOSED
TO SLAT FLAP CONTROL COMPUTER (SFCC) 2
FROM AFT CARGO DOOR SELECTOR

GENERAL

HYDRAULIC SYSTEM D/O (3)

NORMAL OPENING

PRECAUTIONS

Before opening a cargo door, it is necessary to make sure that the appropriate cargo-compartment door is unlocked and unlatched.

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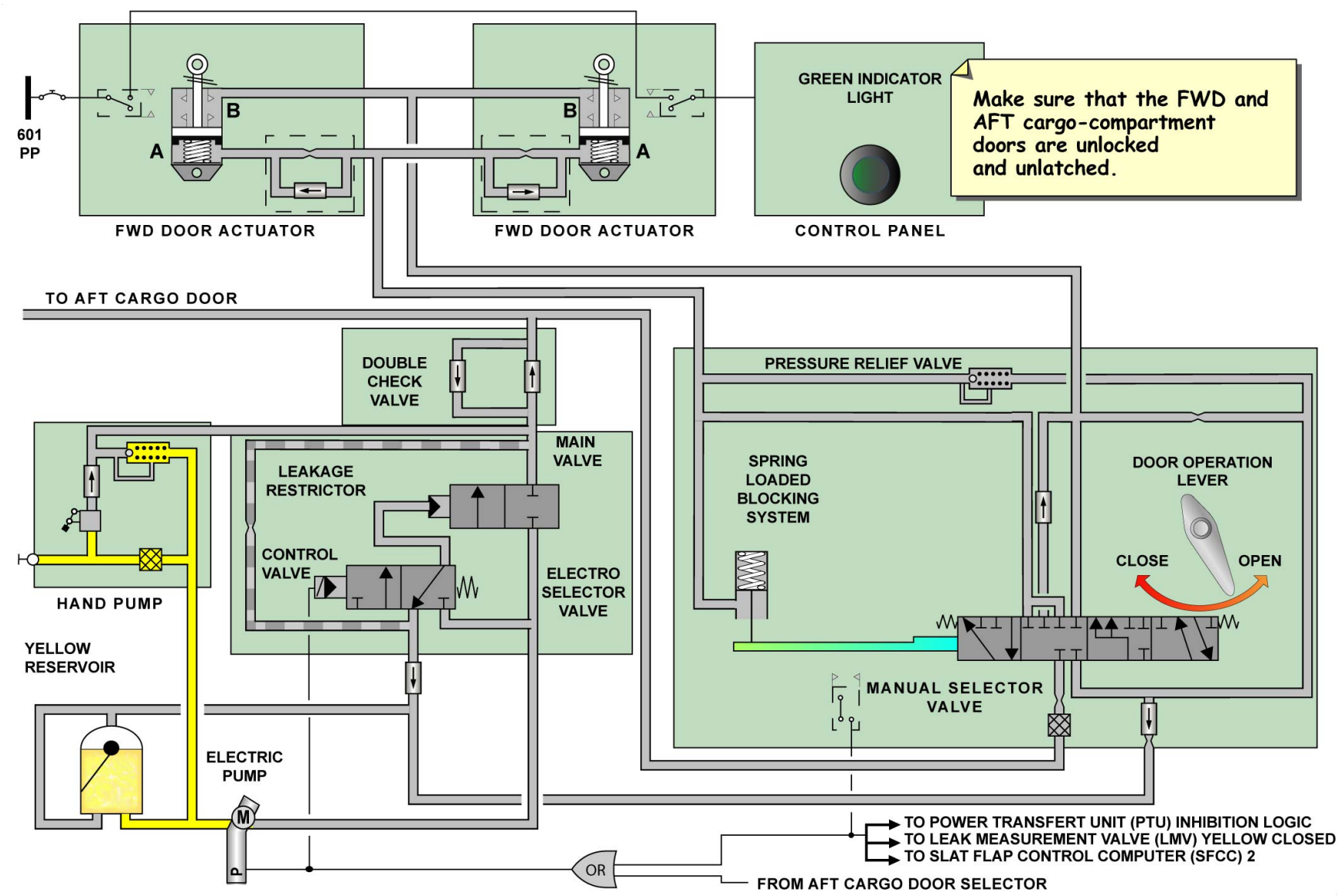

NORMAL OPENING - PRECAUTIONS

HYDRAULIC SYSTEM D/O (3)

NORMAL OPENING (continued)

HYDRAULIC SYSTEM ACTIVATION

To operate the door hydraulic system, set the door operation lever on the control panel to the OPEN position and hold it. This moves the manual selector valve to the extension position. Then, a signal is sent through the Landing Gear Control and Interface Unit (LGCIU) 2 which starts the yellow electric pump to supply the hydraulic fluid.

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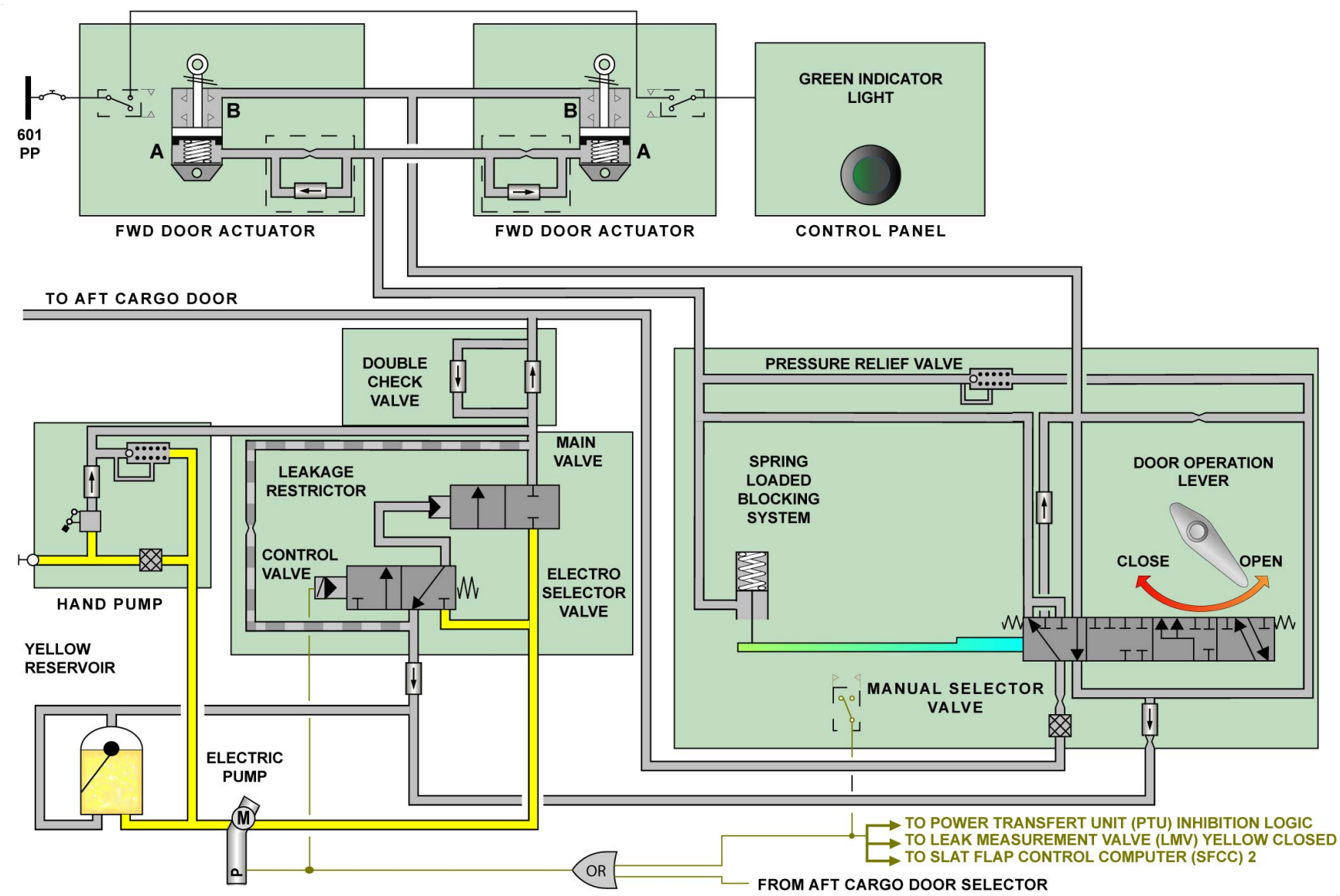

NORMAL OPENING - HYDRAULIC SYSTEM ACTIVATION

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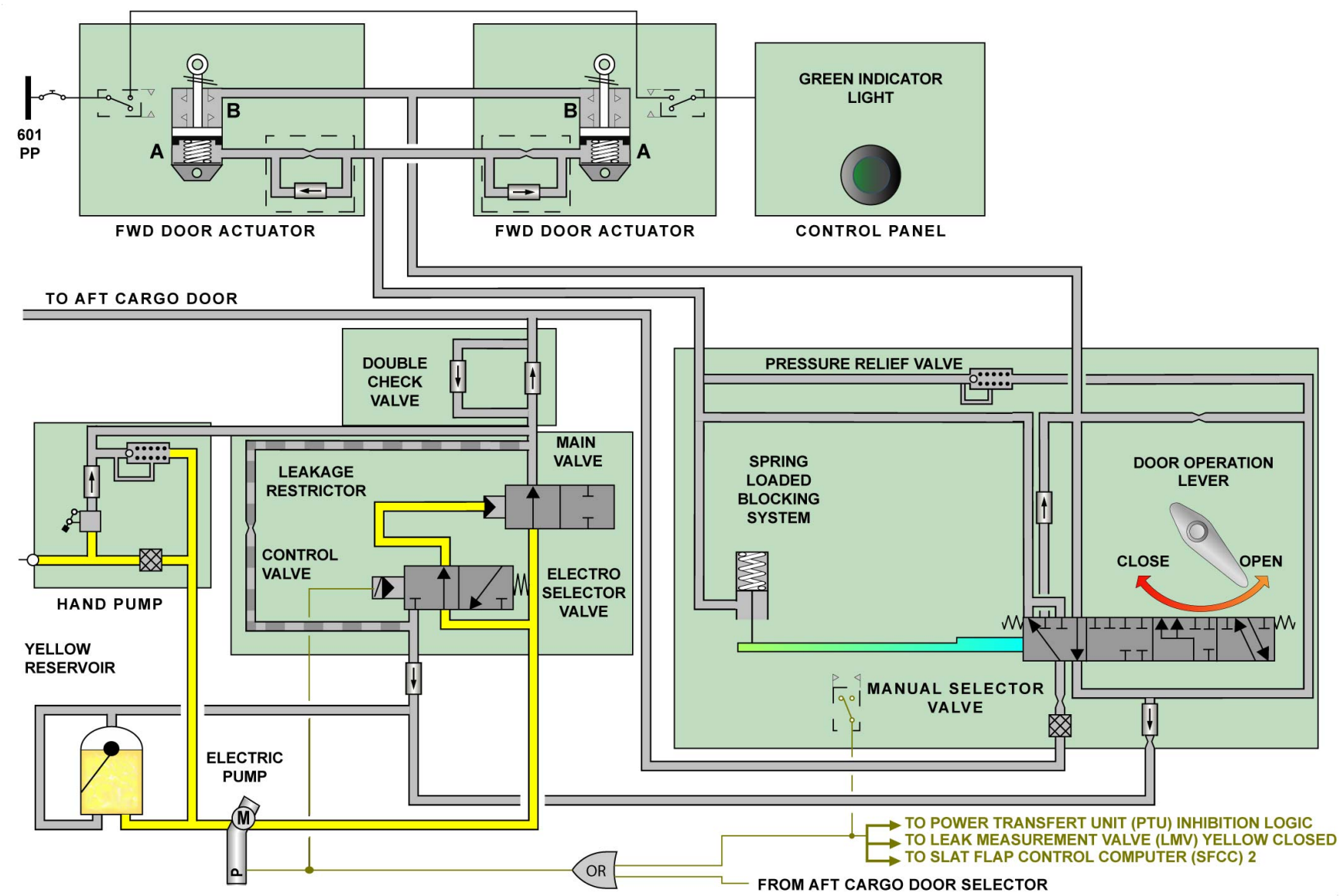
HYDRAULIC SYSTEM D/O (3)

NORMAL OPENING (continued)

ELECTRIC SELECTOR VALVE

The electric selector valve is energized open and releases the pressure to the manual selector valve.



NORMAL OPENING - ELECTRIC SELECTOR VALVE

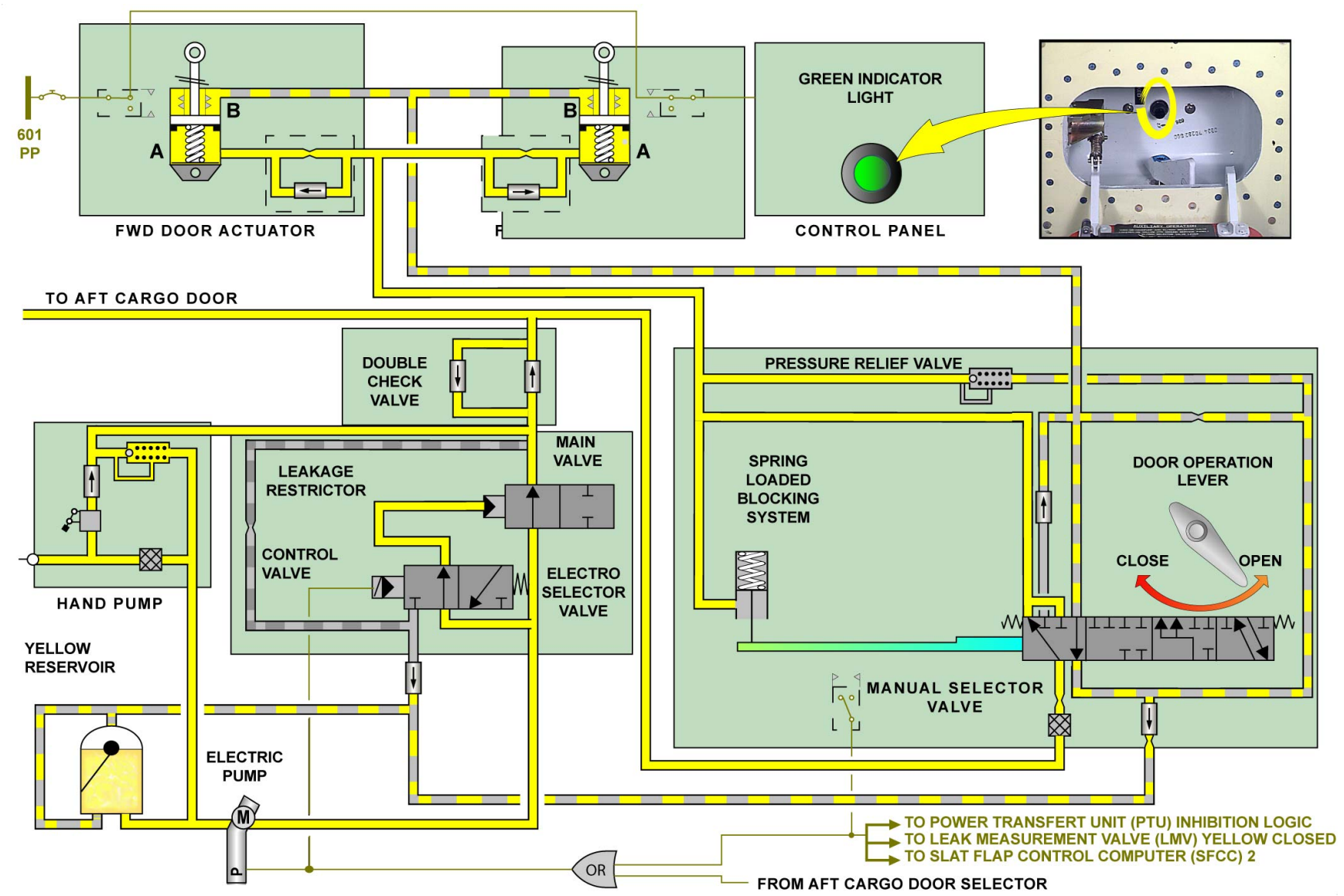
HYDRAULIC SYSTEM D/O (3)

NORMAL OPENING (continued)

EXTENDED POSITION

The door actuator extends and opens the cargo compartment door outwards. When the cargo compartment door is fully opened, the green indicator light on the control panel comes on to indicate that the door actuator is mechanically locked in its extended position.

UGB13131 - U7ST0M0 - UM52DI000000002



NORMAL OPENING - EXTENDED POSITION

UGB13131 - U7ST0M0 - UM52DI000000002

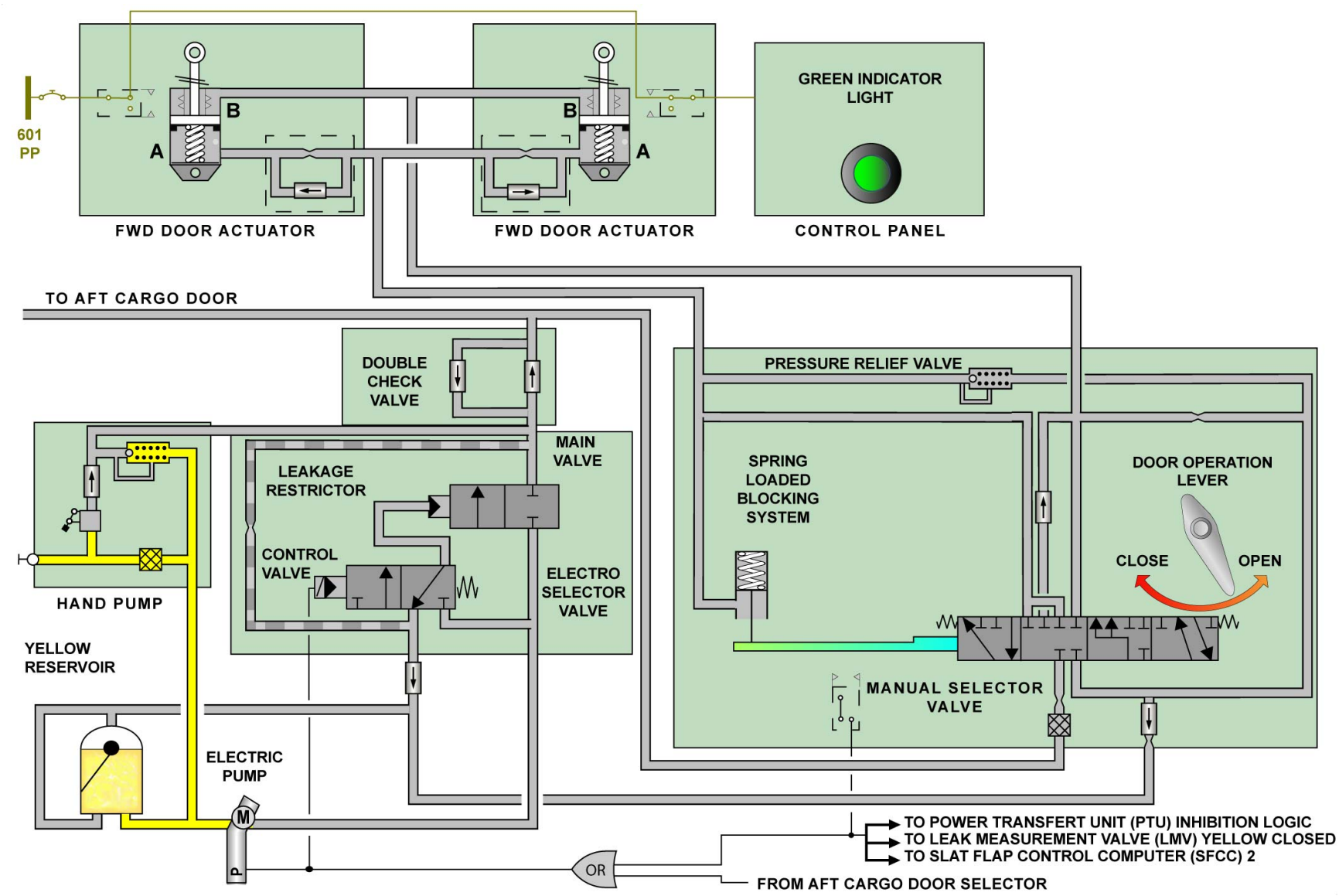
HYDRAULIC SYSTEM D/O (3)

NORMAL CLOSING

PRECAUTIONS

Before operating the door hydraulic system make sure that the door sill latches are lifted. The door sill latches operate micro switches which either enable cargo door operation when in the raised position, or cargo loading system operation when lowered.

UGB13131 - U7ST0M0 - UM52DI000000002



NORMAL CLOSING - PRECAUTIONS

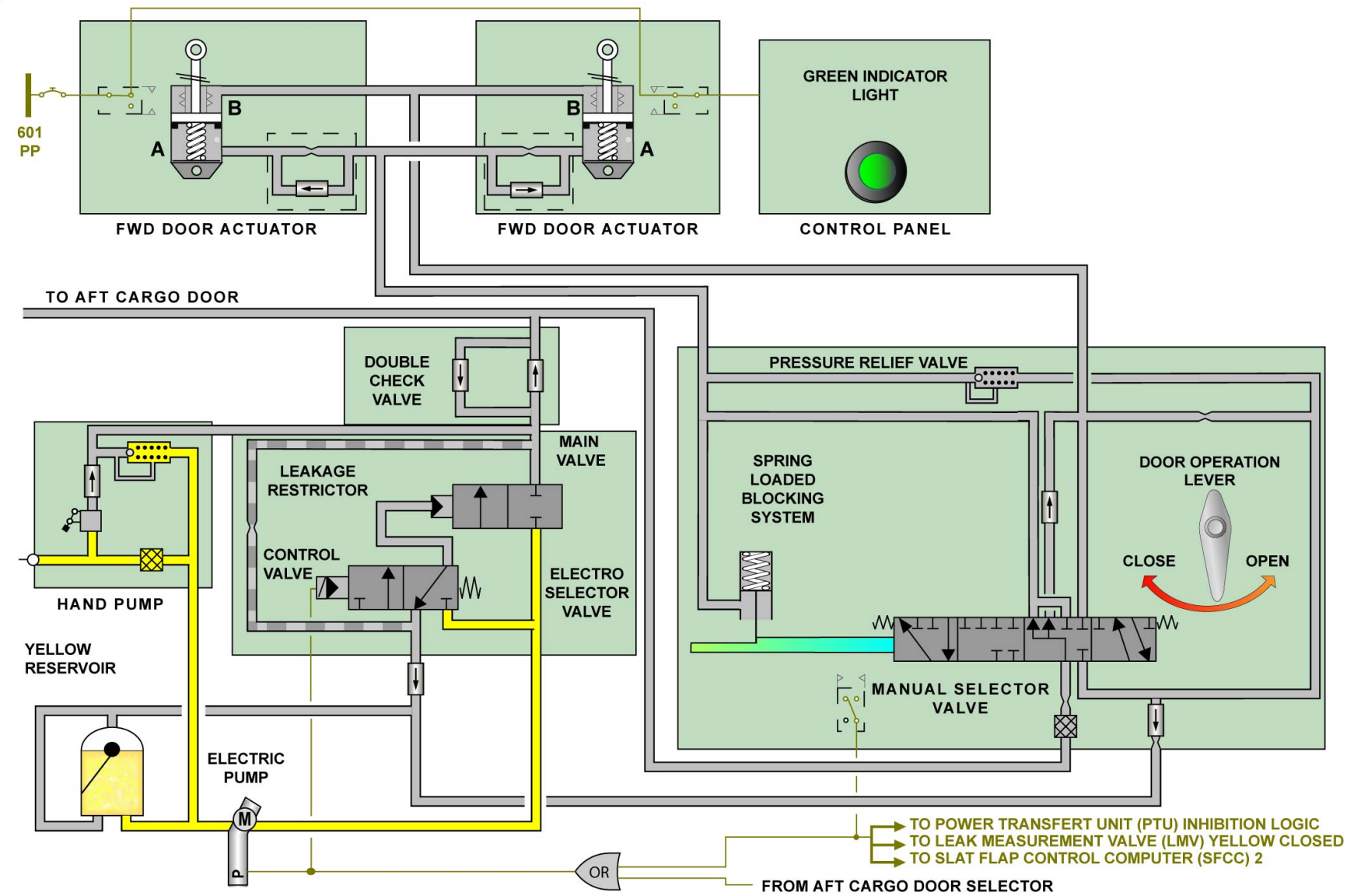
HYDRAULIC SYSTEM D/O (3)

NORMAL CLOSING (continued)

HYDRAULIC SYSTEM ACTIVATION

The door operation lever is turned towards the CLOSE position and it stops in the intermediate position then the pump starts.

UGB13131 - U7ST0M0 - UM52DI000000002



NORMAL CLOSING - HYDRAULIC SYSTEM ACTIVATION

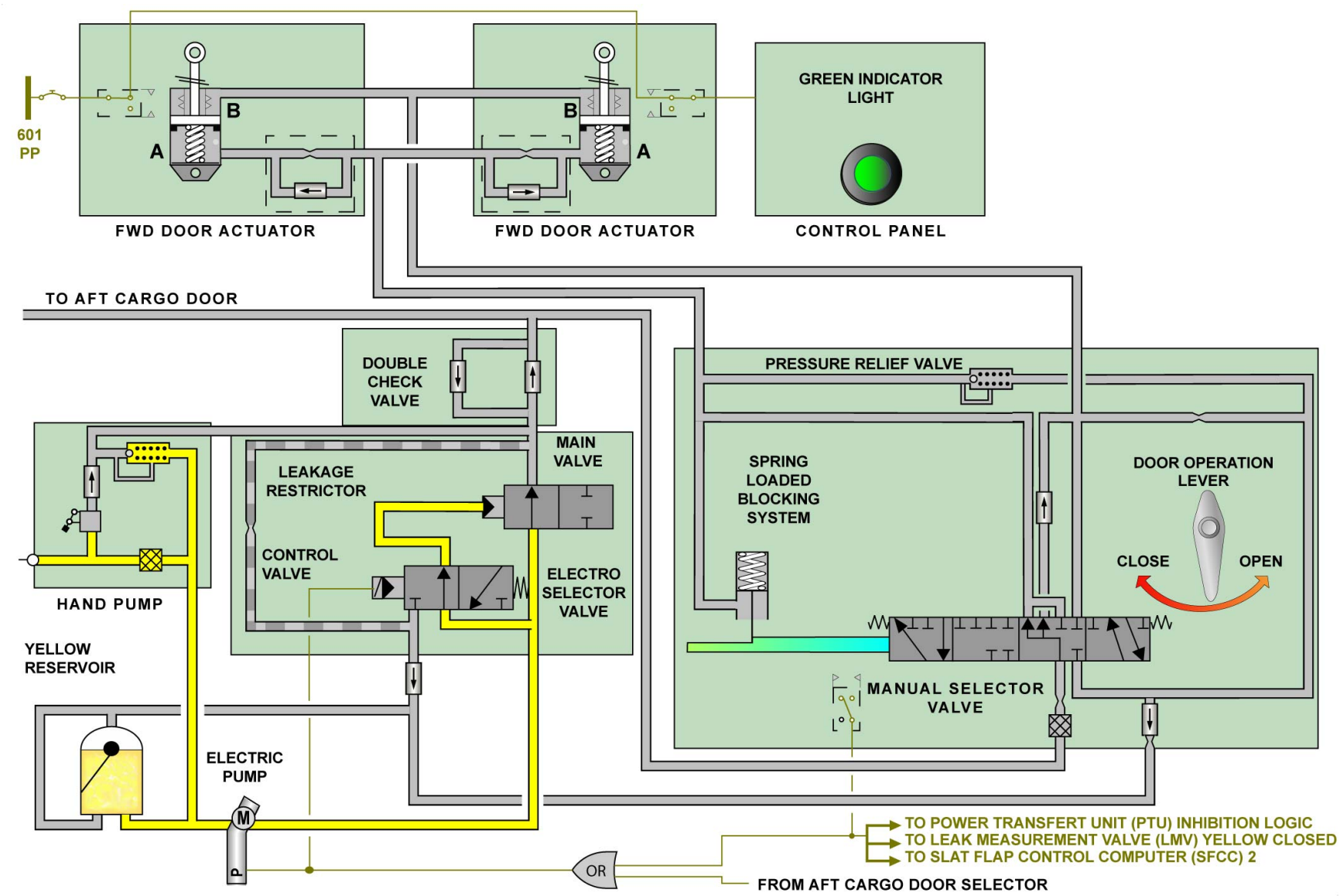
UGB13131 - U7ST0M0 - UM52DI000000002

HYDRAULIC SYSTEM D/O (3)

NORMAL CLOSING (continued)

ELECTRIC SELECTOR VALVE

The electric selector valve is energized open to release the pressure to the manual selector valve.



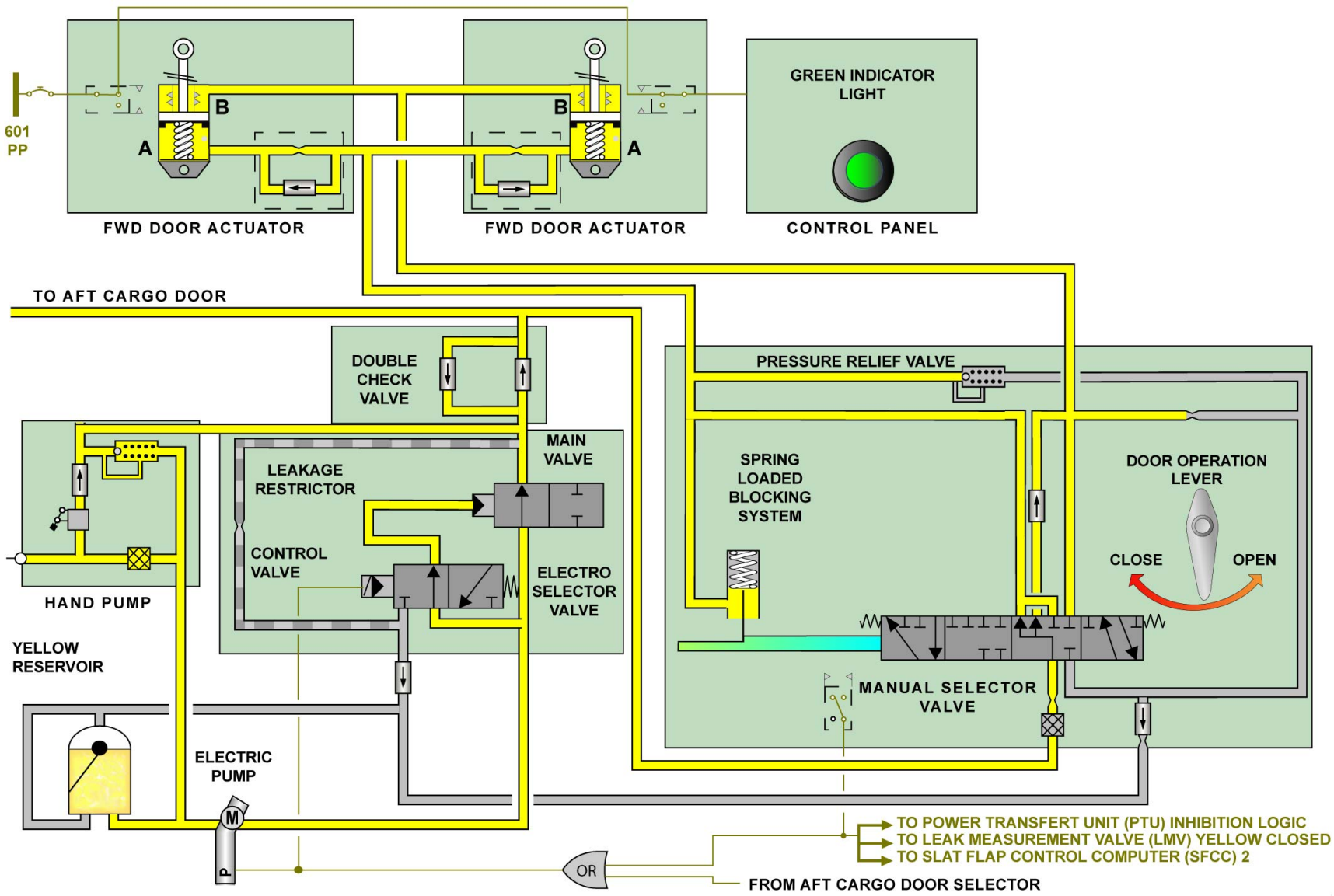
NORMAL CLOSING - ELECTRIC SELECTOR VALVE

HYDRAULIC SYSTEM D/O (3)

NORMAL CLOSING (continued)

INTERMEDIATE POSITION

The intermediate position is a safety position. The door actuator is first pressurized on both sides to prevent a sudden movement of the door when the actuator mechanical lock is released, what could cause a damage of the lock.



NORMAL CLOSING - INTERMEDIATE POSITION

UGB13131 - U7ST0M0 - UM52DI000000002

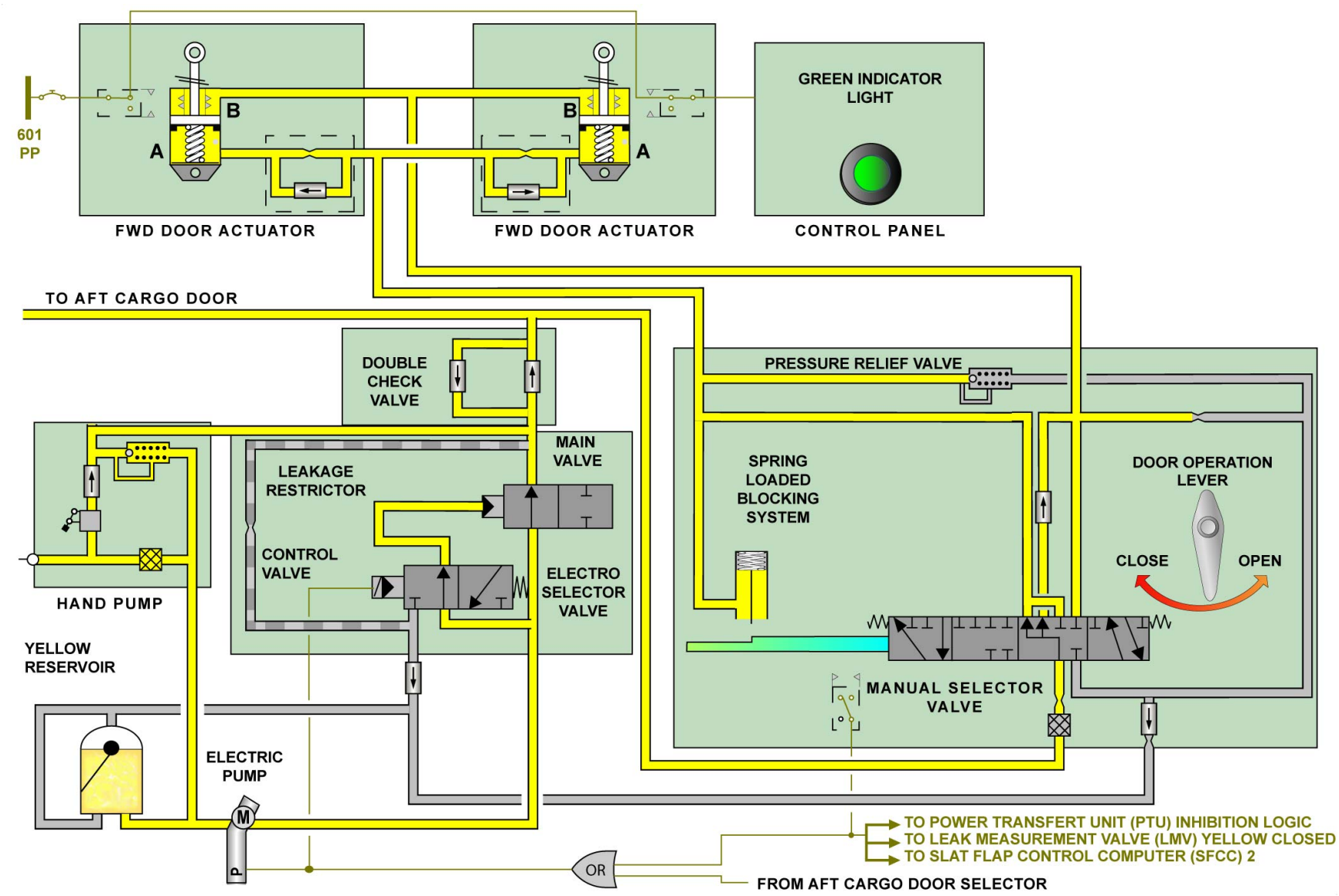
HYDRAULIC SYSTEM D/O (3)

NORMAL CLOSING (continued)

SAFETY PRESSURE

When the pressure is then sufficient the blocking piston retracts and the manual selector valve can be moved further to the fully close position.

NOTE: The manual selector valve remains in the intermediate position until the pressure reaches 20 bars (290 psi) in the blocking piston.



NORMAL CLOSING - SAFETY PRESSURE

UGB13131 - U7ST0M0 - UM52DI000000002

HYDRAULIC SYSTEM D/O (3)

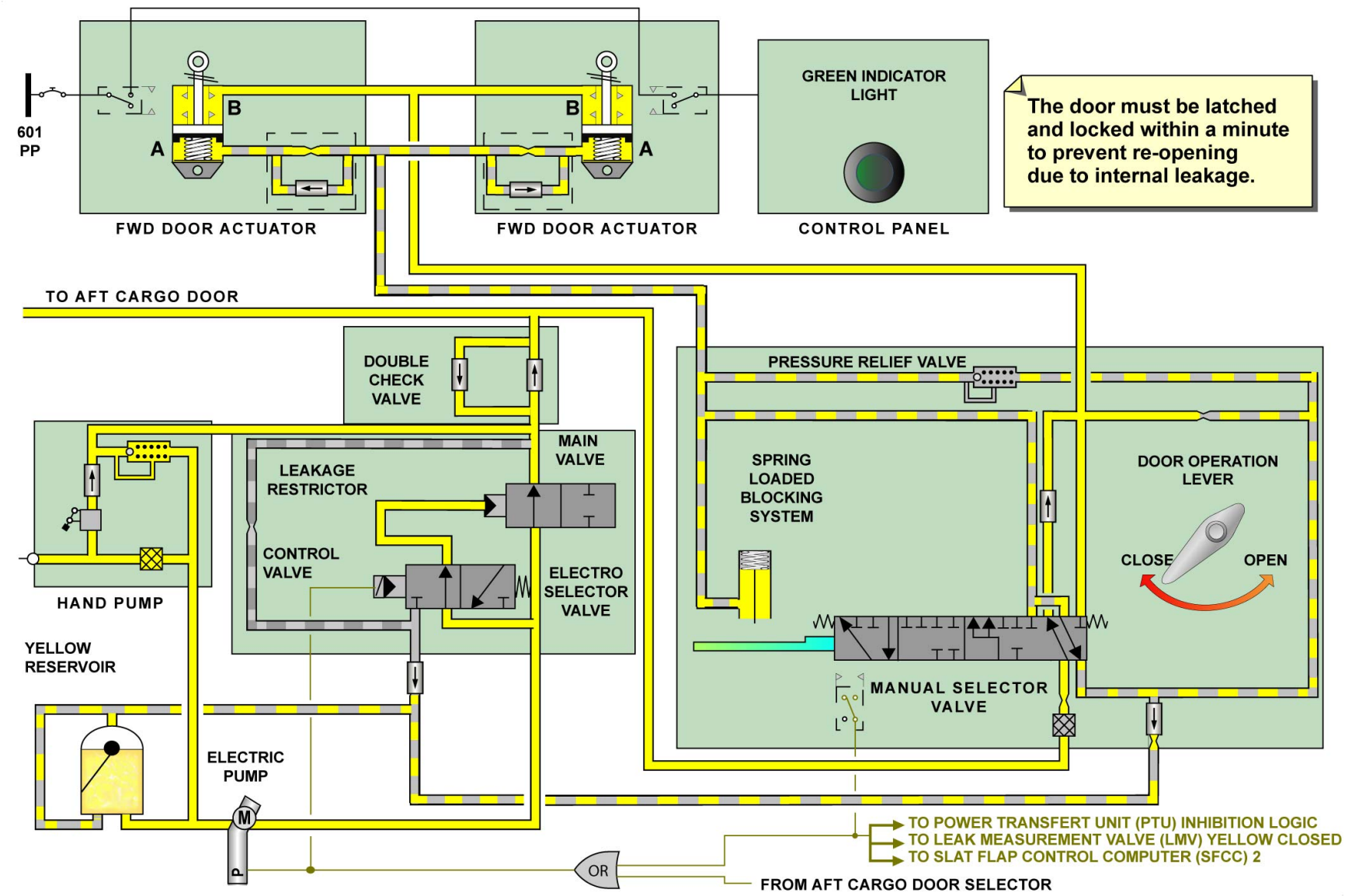
NORMAL CLOSING (continued)

CLOSED POSITION

The manual selector valve can move to supply the door actuator for closing.

NOTE: The door must be latched and locked within a minute to prevent re-opening due to internal leakage.

UGB13131 - U7ST0M0 - UM52DI000000002



NORMAL CLOSING - CLOSED POSITION

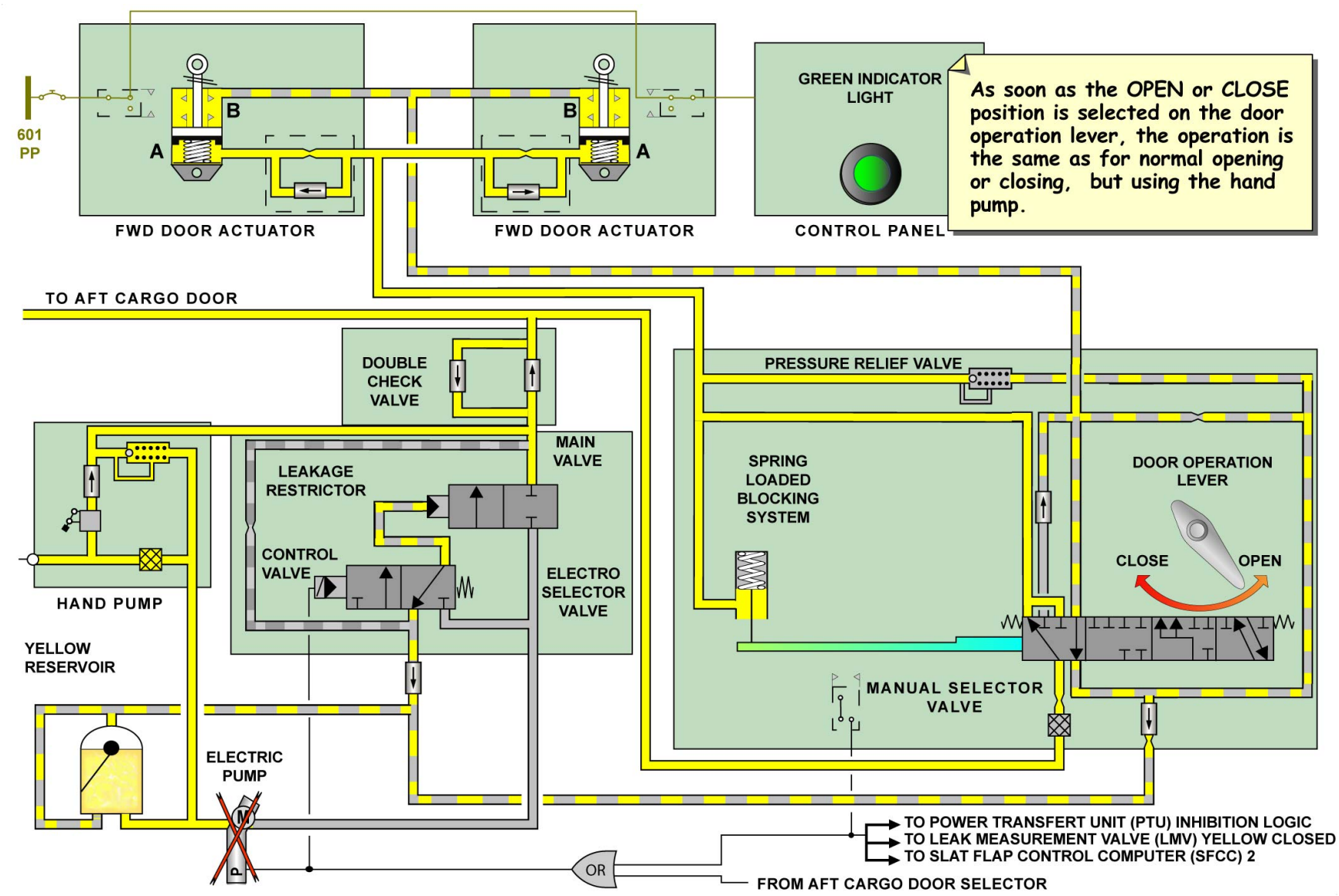
UGB13131 - U7ST0M0 - UM52DI000000002

HYDRAULIC SYSTEM D/O (3)

MANUAL OPERATION

With no electrical power available on the aircraft the yellow electric pump is not available, and the manual selector does not energize the electric selector valve. In this case the hand pump on the yellow hydraulic panel must be used to operate the door hydraulic system manually. A second person is needed to operate the hand pump. The operating handle for the hand pump has to be taken from the green hydraulic system service panel. The further operation for opening and closing is identical with the door normal operation.

UGB13131 - U7ST0M0 - UM52DI000000002



MANUAL OPERATION

UGB13131 - U7ST0M0 - UM52DI000000002

COCKPIT DOOR OPERATION (2)

DESCRIPTION

The new reinforced phase II cockpit door meets all existing JAR/FAR requirements and consists in a new door blade, reinforced attachments, new latching principles and a new door opening logic. This code pad provides increase security levels and is used to notify cockpit crew of a request for entry or to open the door in case of confirmed incapacitation of both pilots. The buzzer in the cockpit rear of the overhead panel provides an oral warning to notify the cockpit crew. This door control toggle switch with three positions and associated warning lights, is normally installed on the pedestal. They can also be located on the overhead panel on request. The Control Door Locking System (CDLS) is a control box located on the overhead panel, which monitors latches and rapid pressure variations in the cockpit. For cockpit evacuation, there is an escape panel that can only be removed from inside the cockpit. Finally, the door is fitted with three electrical latches and a new spy hole.

UGB13131 - U7ST0M0 - UM52P1000000001

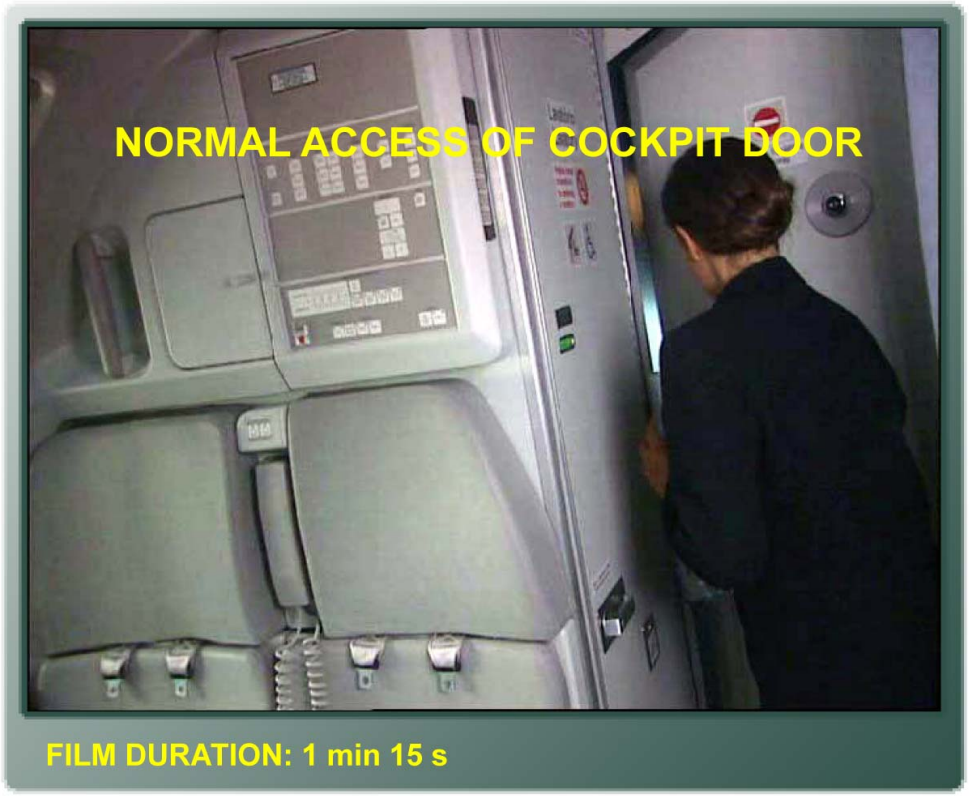
DESCRIPTION

COCKPIT DOOR OPERATION (2)

NORMAL ACCESS

Refer only to the video sequence.

UGB13131 - U7ST0M0 - UM52P1000000001



NORMAL ACCESS

COCKPIT DOOR OPERATION (2)

LOCKING

Refer only to the video sequence.

UGB13131 - U7ST0M0 - UM52P1000000001

LOCKING DOOR OPERATION
UNLOCK
NORM
LOCK
FILM DURATION: 1 min 15 s

LOCKING

COCKPIT DOOR OPERATION (2)

EMERGENCY OPERATION

Refer only to the video sequence.

UGB13131 - U7ST0M0 - UM52P1000000001

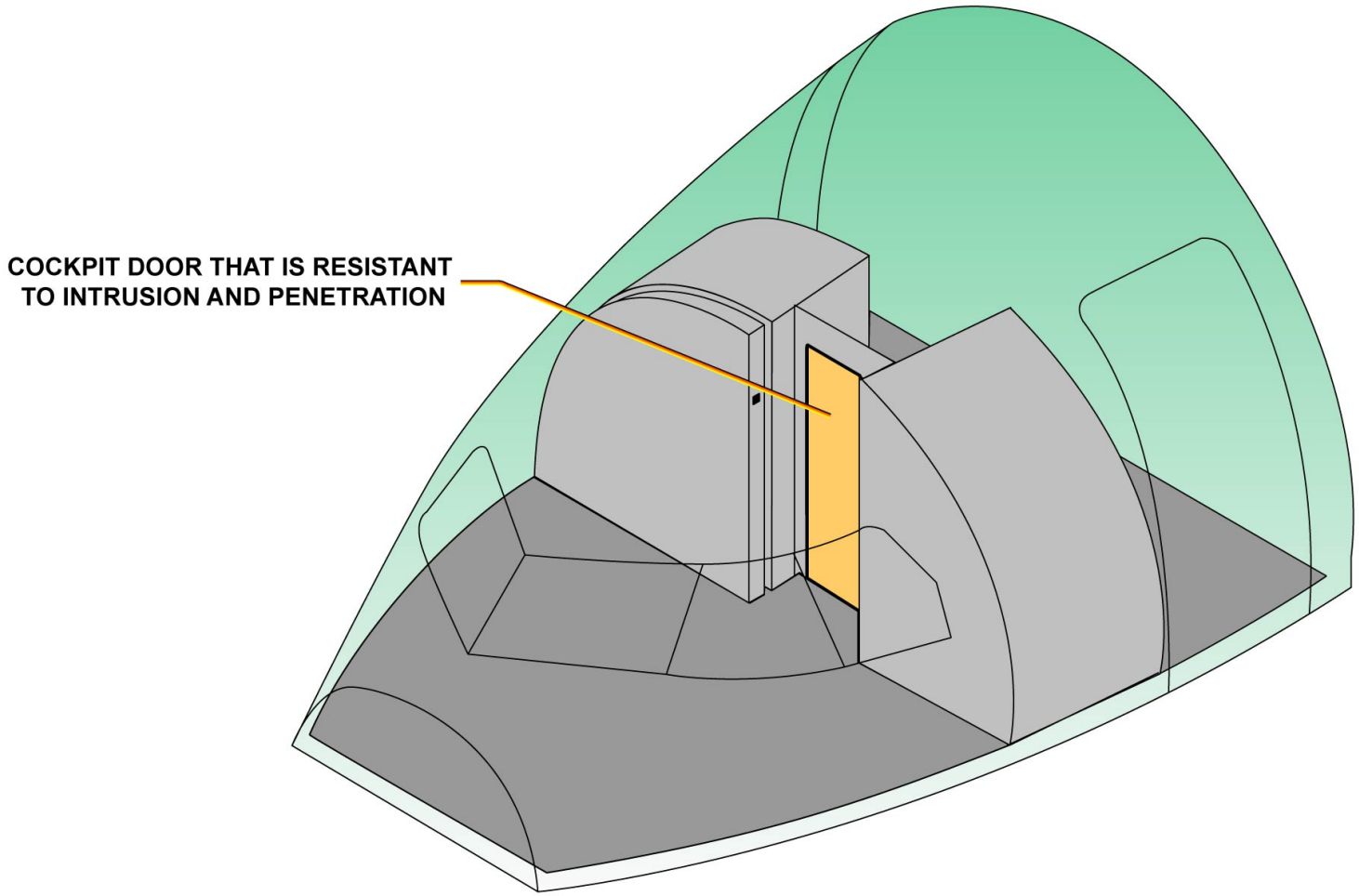
EMERGENCY OPERATION

COCKPIT DOOR D/O (3)

GENERAL

The cockpit door is a separation between the cockpit and the passenger cabin. It is installed to prevent or delay forced access to the cockpit from the cabin. It has reinforced door-attachment fittings and a bullet-proof door that is resistant to intrusion and penetration. It also has a Cockpit Door System (CDLS).

UGB13131 - U7ST0M0 - UM52D1000000001


COCKPIT DOOR THAT IS RESISTANT
TO INTRUSION AND PENETRATION

GENERAL

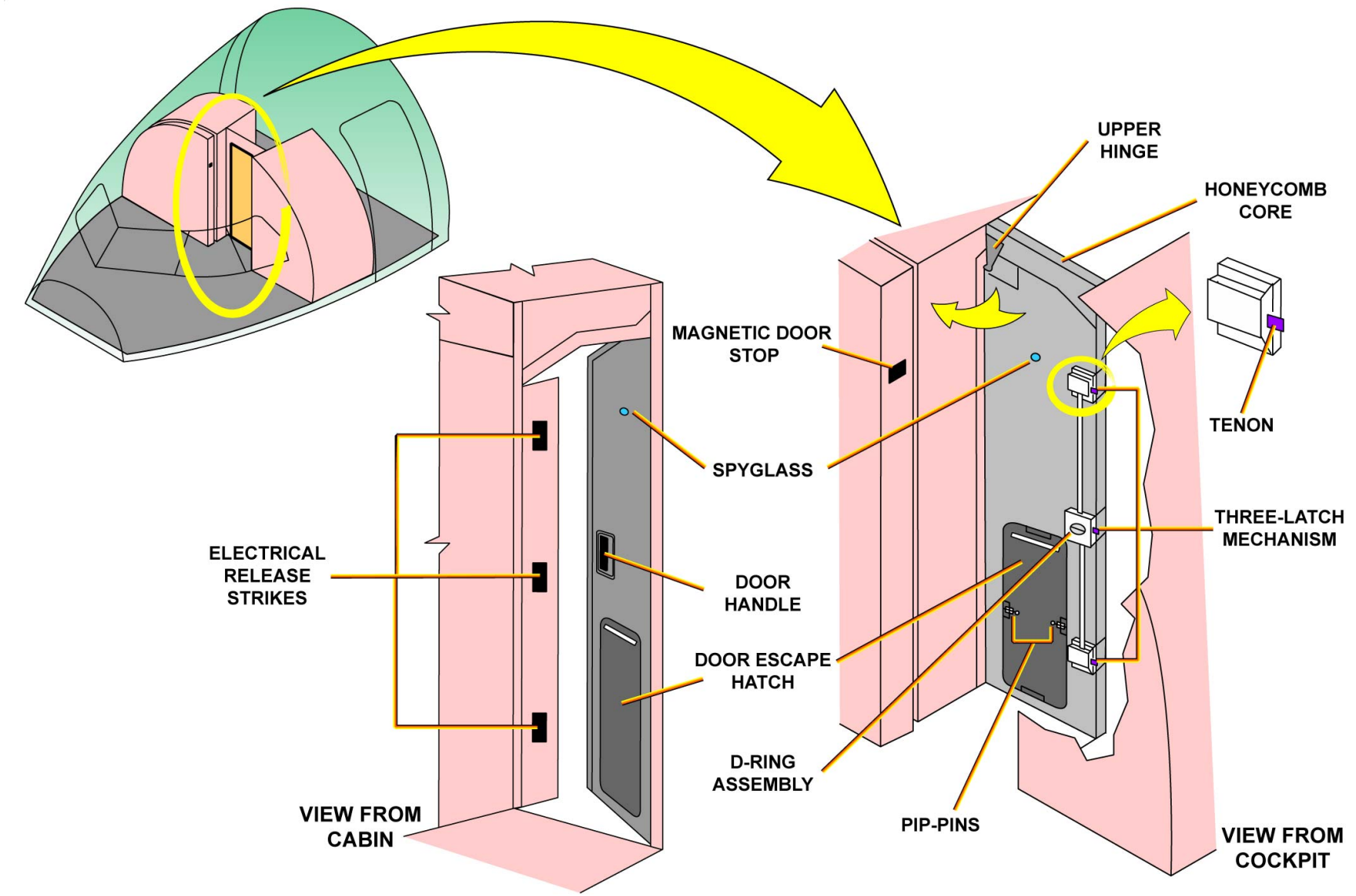
COCKPIT DOOR D/O (3)

DESCRIPTION

DOOR

The cockpit door opens into the cockpit and a magnetic door stop keeps it in its fully open position. The cockpit door structure is a honeycomb core bonded between pre-impregnated sheets.
On the cockpit door there is an upper hinge, which is attached with screws to the cockpit structure. The bottom of the cockpit door has an attachment fitting which engages with the floor structure.
There is a cut-out section in the door structure for the door escape hatch. If an emergency occurs, the cockpit crew can get out of the cockpit through this door escape hatch. The door escape hatch structure is the same as the door. There are two pip-pin fittings installed on the inner side of the hatch. The two pip-pins engage with the related bracket of the door structure to keep the hatch in position.
The manually operated three-latch mechanism keeps the cockpit door in the closed position. It is installed on the inner side of the cockpit door. It has a spring-loaded D-ring assembly which extends or retracts the three-latch tenons. The tenons engage with the catch of the electrical release strikes installed opposite in the lavatory wall. The cockpit door has a door handle and a spyglass.

UGB13131 - U7ST0M0 - UM52D1000000001



DESCRIPTION - DOOR

COCKPIT DOOR D/O (3)

DESCRIPTION (continued)

CDLS

For cockpit security, the cockpit door has an electro-mechanically operated release system: the CDLS. A keypad is installed adjacent to the Forward Attendant Panel (FAP). On the front face, there are two LEDs (red and green) and twelve P/BSWs with the legends 0 to 9, "*" and "#". A buzzer is installed in the cockpit ceiling panel. A signal from the control unit operates the buzzer for a minimum of 2 seconds.
A toggle switch is installed on the cockpit door panel on the center pedestal. It is a three-position switch: UNLOCKed, NORMal and LOCKed. It is spring-loaded and returns automatically to the NORM position. This is the neutral position in which the closed cockpit door is automatically locked.
An indication light is installed on the cockpit door panel. The indication is an OPEN legend and a FAULT legend. The OPEN legend comes on amber when the cockpit door is open. The FAULT legend also comes on amber when there is a malfunction in the CDLS.
Three electrical release strikes are installed on the lavatory sidewall opposite the door latch mechanism. Each of the electrical release strikes has a micro switch activated by the latch when the solenoid is operated. Then the plunger extends and thus the catch cannot move, or the plunger retracts and thus the catch is free. The center electrical release strike has an additional micro switch that monitors the condition of the center latch mechanism. When its tenon does not engage with the catch, the OPEN indication light comes on.

NOTE: If there is a total failure of the CDLS, the door can be closed manually from the cockpit side with a deadbolt to make sure that the A/C operates in MMEL conditions.

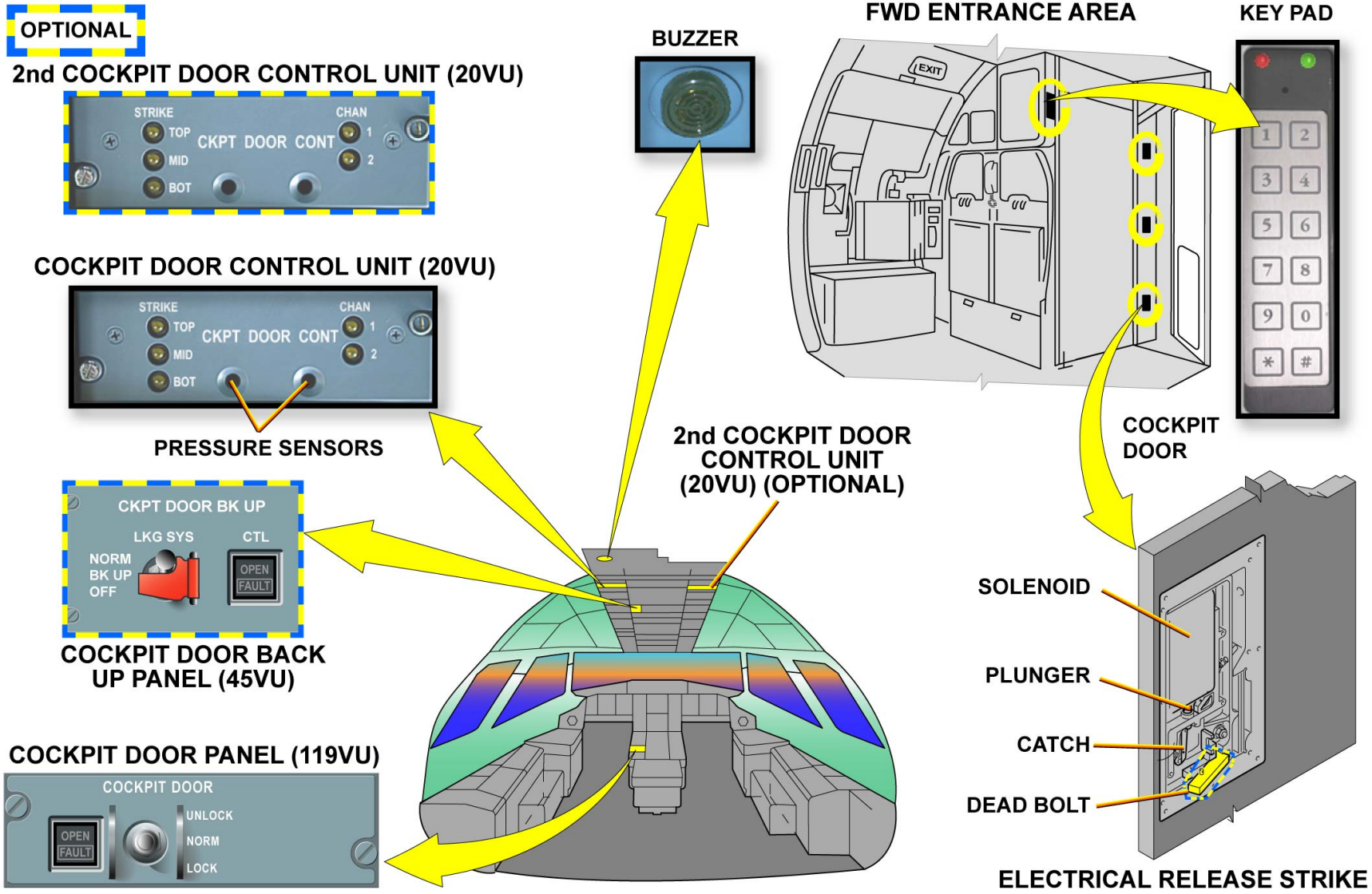
The control unit is installed on the overhead panel. It has the legends CocKPiT DOOR CONTrol, STRIKE TOP, MIDdle and BOTtom and CHANnel 1 and CHAN 2. This unit manages the fault indications, time delays and door access control of the CDLS. To make sure that the CDLS operates in Minimum Equipment List (MEL) conditions, an optional second control unit can be installed on the overhead panel, as a back-up system. They have two internal pressure sensors that operate if a rapid decompression occurs in the flight compartment, which de-energizes the solenoids. The microprocessor receives signals from the toggle switch and the keypad. It sends a signal to operate the buzzer, the indication light, the green or red LED of the keypad and the solenoids of the electrical release strikes. If a fault occurs in the pressure sensors, the related CHAN 1 or CHAN 2 LED comes on and the amber FAULT light comes ON, on the cockpit door panel. If a fault occurs in the electrical release strikes, the related strike LED comes ON, the amber FAULT light comes ON, on the cockpit door panel, and the back-up control unit starts to operate in replacement.

NOTE: If a rapid decompression occurs, the door is blown open by the flow of air through the A/C.

If the first locking attempt is not satisfactory, the power is removed only from the related strike. After 2 seconds, the strike is activated again. If the second attempt is also not satisfactory, the strike is deactivated and the related fault LED comes ON, on the CDLCU.
To reset a disabled strike, the toggle switch on the cockpit door panel must be set to the UNLOCK position and back to the NORM position.
There is an additional counter that stops the strike for the entire Aircraft power cycle after ten unsatisfactory locking attempts. The counter is reset after a power cycle of the CDLS or after one satisfactory locking attempt. This makes sure that this counter has no effect on the daily operation and on the dispatchability of the aircraft. Pull the CDLS circuit breaker 1MQ in the cockpit to reset the system and the counter.
The CKPT DOOR BacK UP panel is a back-up system which is activated through the LocKinG SYStem override switch, if one of these conditions occurs:

- FAULT indication comes ON on the basic system due to CHAN 1 and CHAN 2 fault,
- basic system malfunction.

UGB13131 - U7ST0M0 - UM52D1000000001



DESCRIPTION - CDLS

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UGB13131 - U7ST0M0 - UM52D1000000001

COCKPIT DOOR D/O (3)

DOOR OPENING

CABIN TO COCKPIT

Push the "#" key or enter a number plus the "#" key on the keypad. The buzzer then sounds, which tells the flight crew that access to the cockpit is requested.
If the flight crew sets the toggle switch to the UNLOCK position:
- the control unit de-energizes the solenoid of the release strikes. This causes the plungers to retract so that they do not block the catches,
- the control unit sends a signal to the keypad so that the green LED comes on. This shows that the cockpit door is unlocked and that access is available,
- the buzzer stops.

Push the cockpit door in the flight direction until the magnetic stop keeps it in its fully open position. The amber OPEN indication light then comes ON on the cockpit door panel. This shows that the cockpit door is open.
If the flight crew sets the toggle switch to the LOCK position:
- the control unit does not de-energize the solenoids of the release strikes. The plungers therefore remain extended and block the catches,
- the control unit sends a signal to the keypad so that the red LED comes on. This shows that the cockpit door is locked and that access to the cockpit is not available,
- the buzzer stops.

In this case, operation of the keypad and the buzzer is prevented during a specific time of between 5 and 15 min. The flight crew can cancel this function if they set the toggle switch from the LOCK position to the UNLOCK position.

CABIN TO COCKPIT (EMERGENCY)

Enter the selected four-digit code plus the "#" key on the keypad. This causes the buzzer to come on continuously and the green LED to flash.
If the flight crew does not operate the toggle switch within a specific time of between 15 seconds and 2 minutes:
- the control unit de-energizes the solenoids of the release strikes. This causes the plungers to retract so they do not block the catches for 5 seconds,
- the control unit sends a signal to the keypad. This causes the green LED to come on for 5 seconds. The green LED shows that the cockpit door is unlocked and access is possible,
- the buzzer stops.

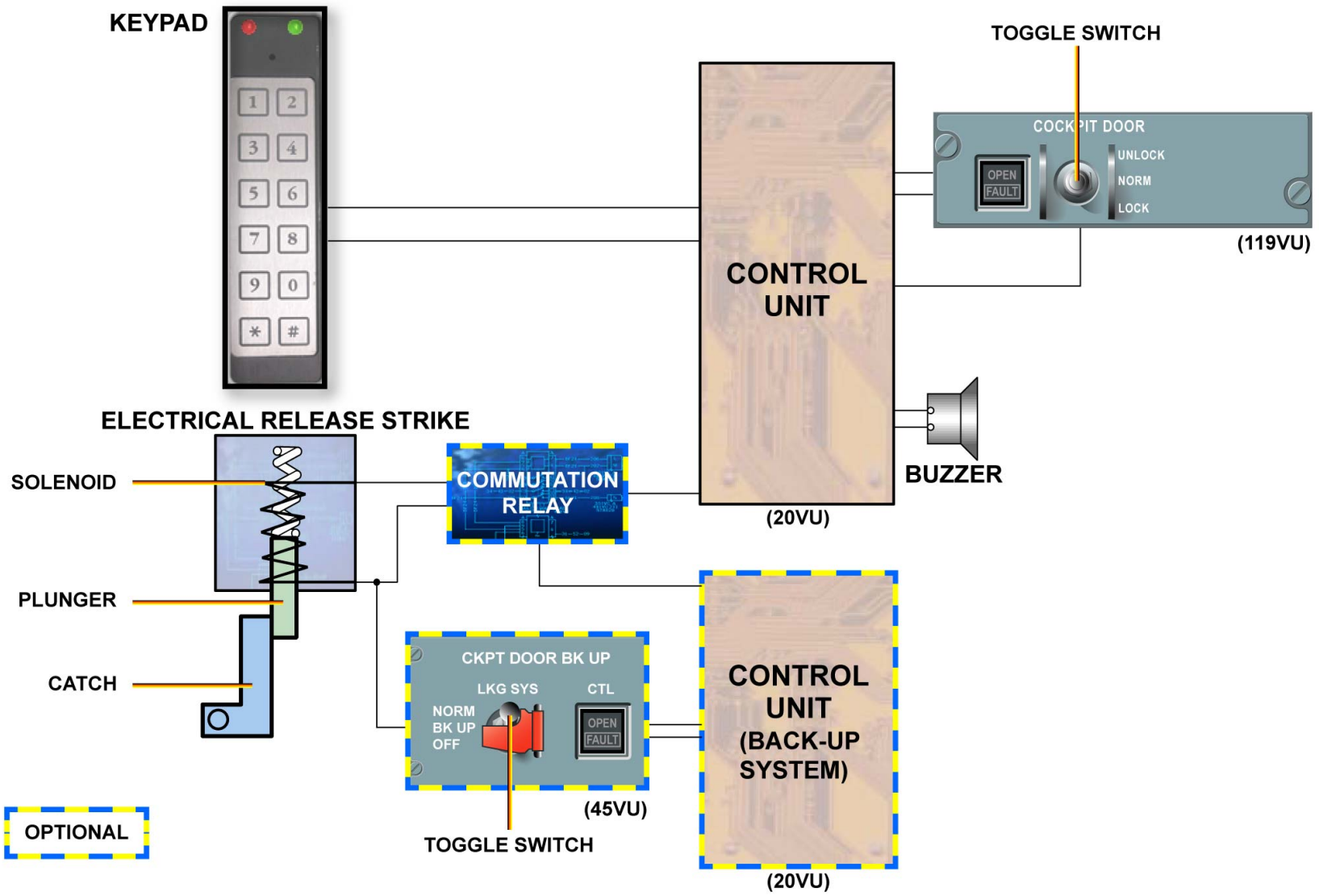
Push the cockpit door in the flight direction until the magnetic stop keeps it in its fully open position. The amber OPEN indication light then comes ON on the cockpit door panel. This shows that the cockpit door is open.
If the flight crew sets the toggle switch to the UNLOCK position within a specific time of between 15 seconds and 2 minutes:
- the control unit de-energizes the solenoids of the release strikes. This causes the plungers to retract so that they do not block the catches,
- the control unit sends a signal to the keypad so that the green LED comes on. The green LED shows that the cockpit door is unlocked and that access is possible,
- the buzzer stops.

Push the cockpit door in the flight direction until the magnetic stop keeps it in its fully open position. The amber OPEN indication light then comes ON on the cockpit door panel. This shows that the cockpit door is open.
If the flight crew sets the toggle switch to the LOCK position within a specific time of between 15 seconds and 2 min:
- the control unit does not de-energize the solenoid of the release strikes. So the plungers remain extended and block the catches,
- the control unit sends a signal to the keypad so that its red LED comes on. This shows that the cockpit door is locked and access to the cockpit is not available,
- the buzzer stops.

In this case, operation of the keypad and the buzzer is prevented during a specific time of between 5 and 15 minutes. The flight crew can cancel this function if they set the toggle switch from the LOCK position to the UNLOCK position.

BACK-UP SYSTEM (OPTIONAL)

The cockpit door locking back-up system is an optional system activated under Master Minimum Equipment List (MMEL) conditions when the normal CDLS has failed. It ensures that the cockpit door release system can operate.
The fault indication of one system is automatically inhibited when the other system is selected.
If the optional back-up control unit is installed, an additional toggle switch lets you do the changeover to the back-up unit. This switch also lets you completely disconnect the system during maintenance.



DOOR OPENING - CABIN TO COCKPIT ... BACK-UP SYSTEM (OPTIONAL)

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UGB13131 - U7ST0M0 - UM52D1000000001

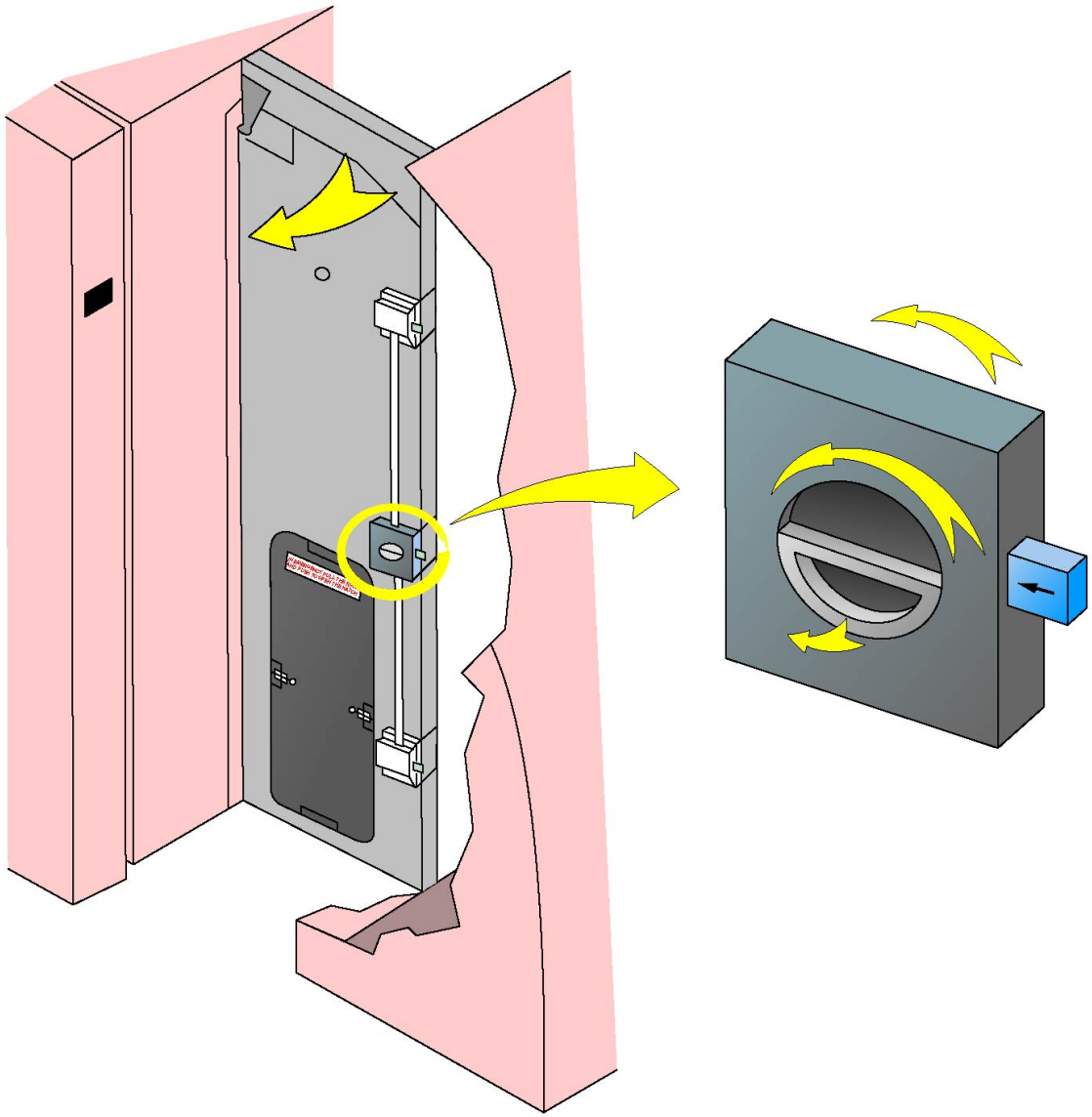
COCKPIT DOOR D/O (3)

DOOR OPENING (continued)

COCKPIT TO CABIN

Lift and turn the D-ring of the center latch mechanism through 90 degrees so that its internal spring-loaded tenons retract. The tenons are disengaged from the catches and the cockpit door opens.

UGB13131 - U7ST0M0 - UM52D1000000001



DOOR OPENING - COCKPIT TO CABIN

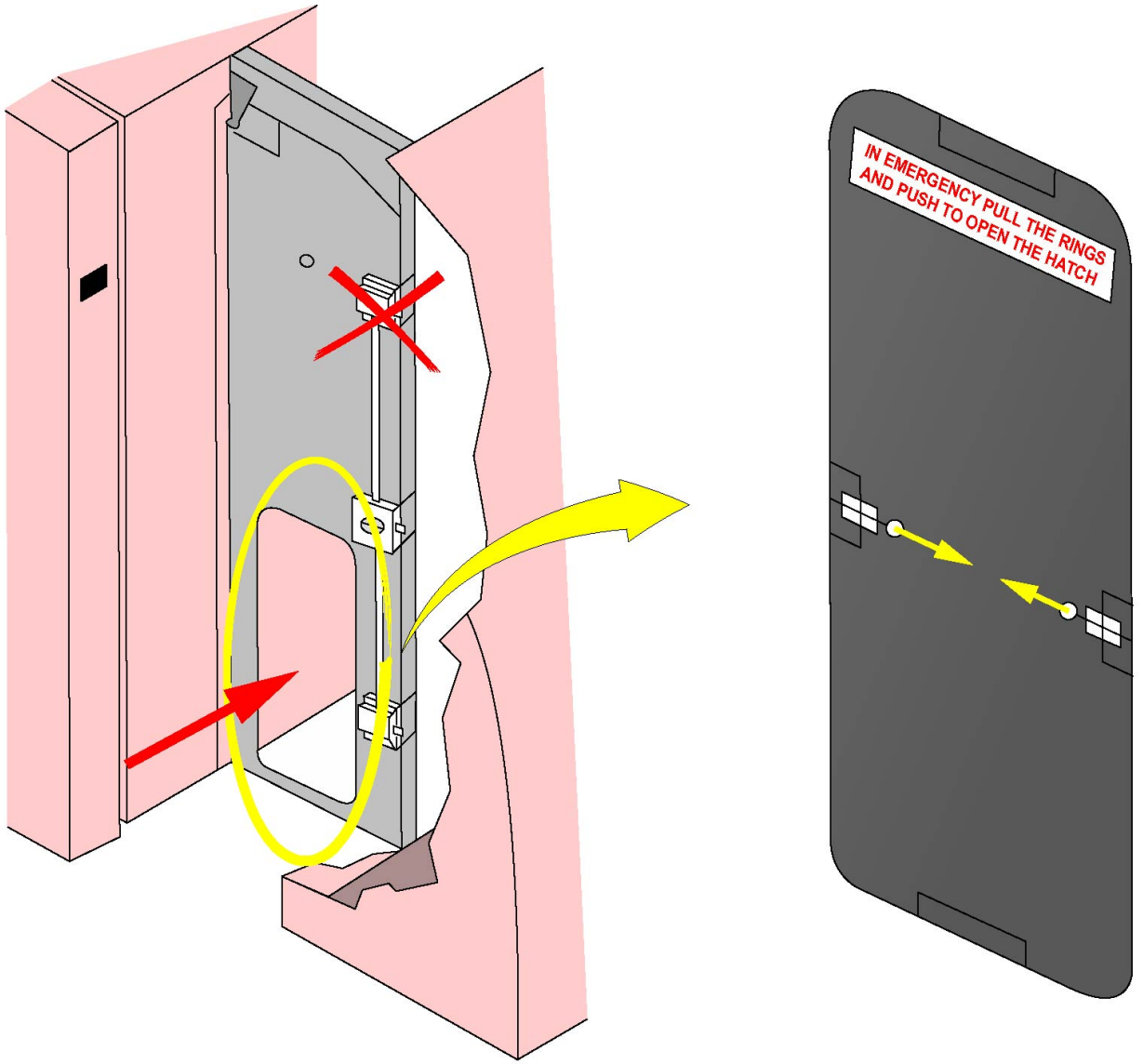
COCKPIT DOOR D/O (3)

DOOR OPENING (continued)

COCKPIT TO CABIN (EMERGENCY)

Lift and turn the D-ring of the center latch mechanism through 90 degrees so that its internal spring-loaded tenons retract. Because the tenons are disengaged from the catches of the electrical release strikes, you can open the cockpit door.
If the door cannot be opened normally, you can remove the door escape hatch:
- disengage the two pip-pins from the pip-pin brackets of the cockpit door to release the door escape hatch,
- then push it in the rear direction so that the cut-out section of the cockpit door is free.

UGB13131 - U7ST0M0 - UM52D1000000001



DOOR OPENING - COCKPIT TO CABIN (EMERGENCY)

DOORS INDICATION & WARNING D/O (3)

PASSENGER DOORS

NOTE: on the A321, the procedures for the passenger and emergency exit doors are identical.

Each door is monitored by three proximity switches that are:
- the locking hook proximity switch,
- the locking shaft proximity switch,
- the escape slide proximity switch.

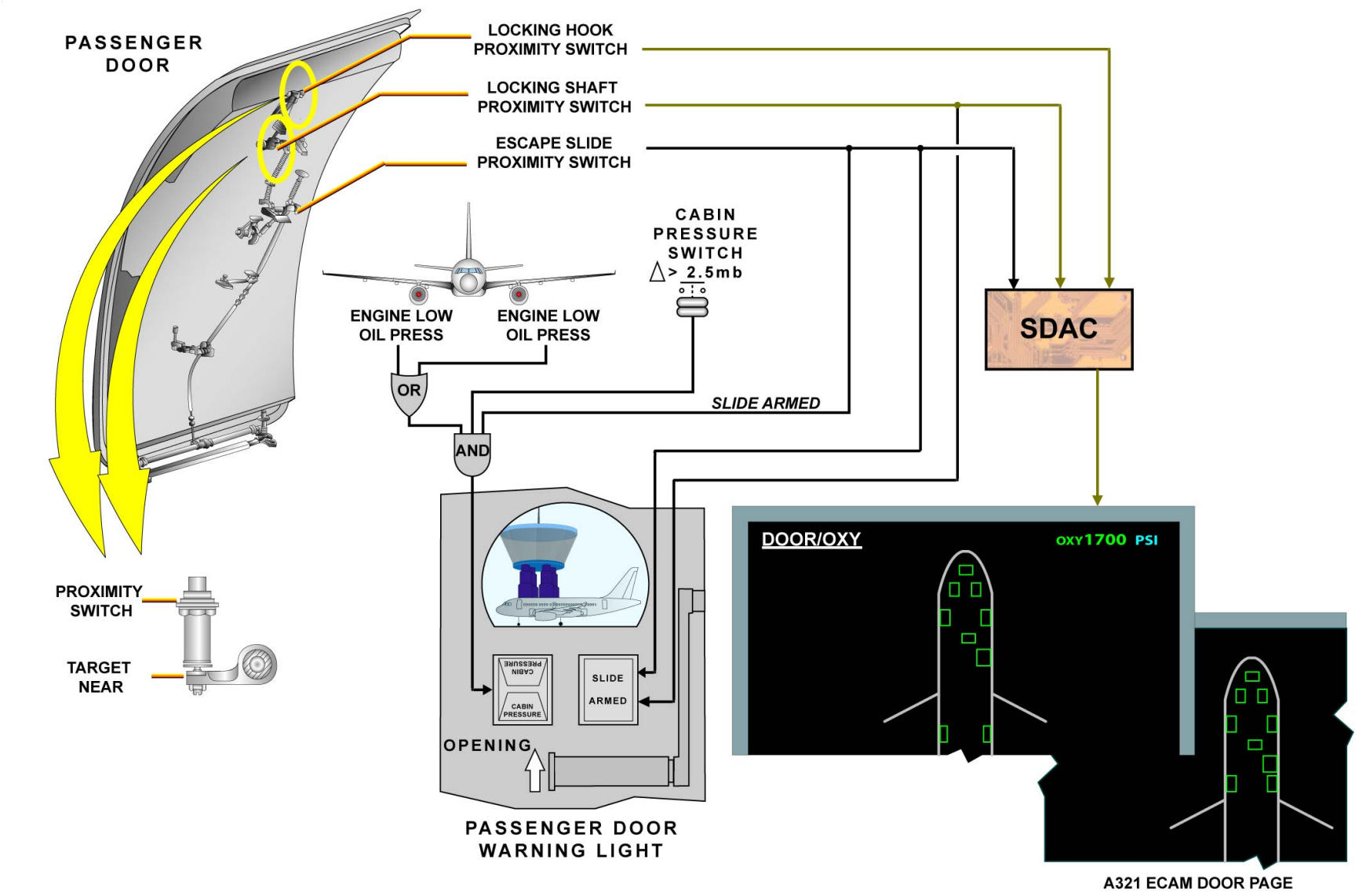
DOOR INDICATING AND WARNING - PRINCIPLE

The locking hook and the locking shaft proximity switches provide door indication on the ECAM DOOR page via the System Data Acquisition Concentrator (SDAC).

DOOR INDICATING AND WARNING - LOCKED

When the door is locked, the locking hook and the locking shaft proximity switch targets are near, and the door symbol is green on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



PASSENGER DOORS - DOOR INDICATING AND WARNING - PRINCIPLE & DOOR INDICATING AND WARNING - LOCKED

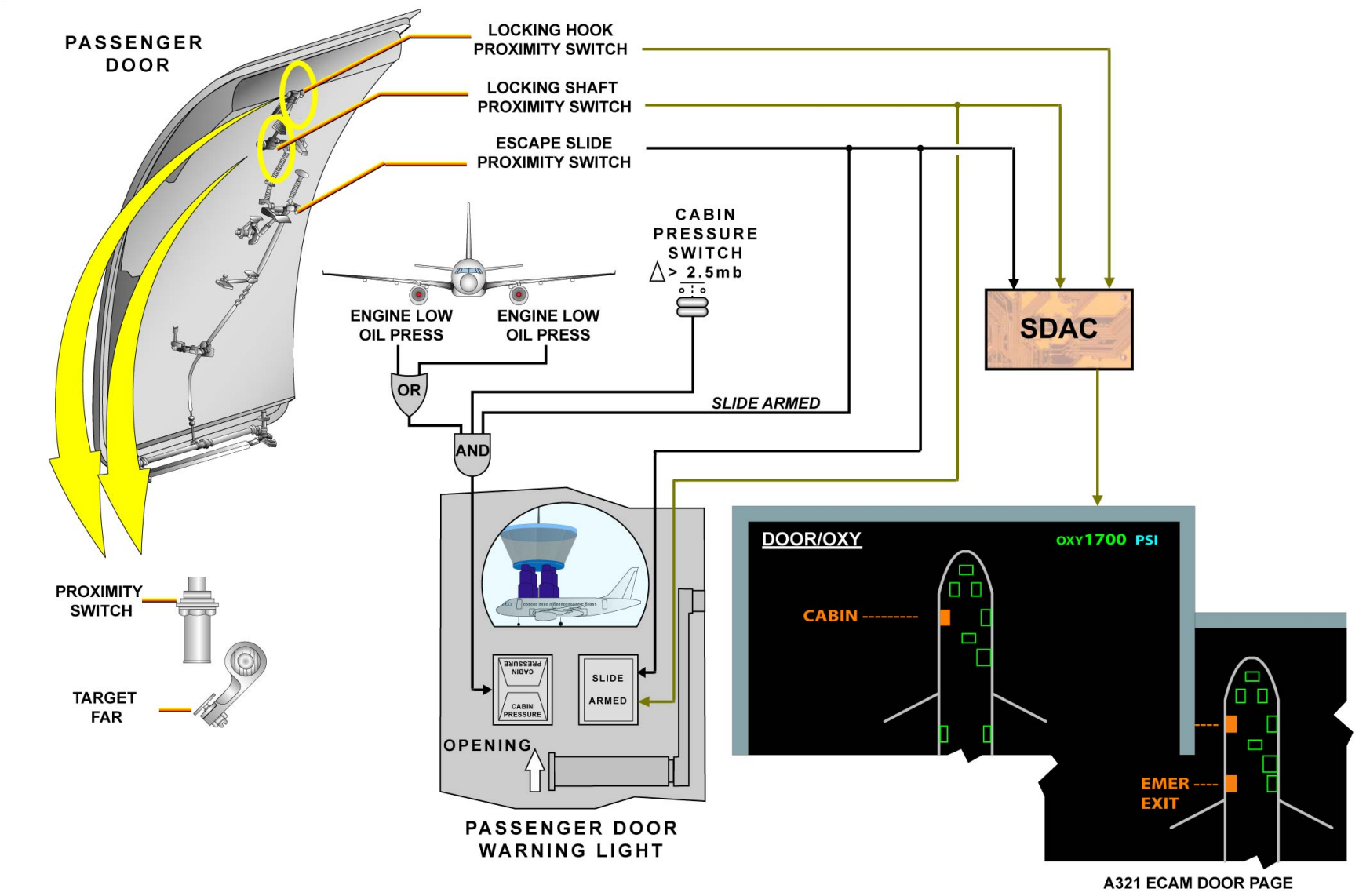
DOORS INDICATION & WARNING D/O (3)

PASSENGER DOORS (continued)

DOOR INDICATING AND WARNING - NOT LOCKED

As soon as at least one of the locking hook and the locking shaft proximity switch target is far, the door indication is amber on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



PASSENGER DOORS - DOOR INDICATING AND WARNING - NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

PASSENGER DOORS (continued)

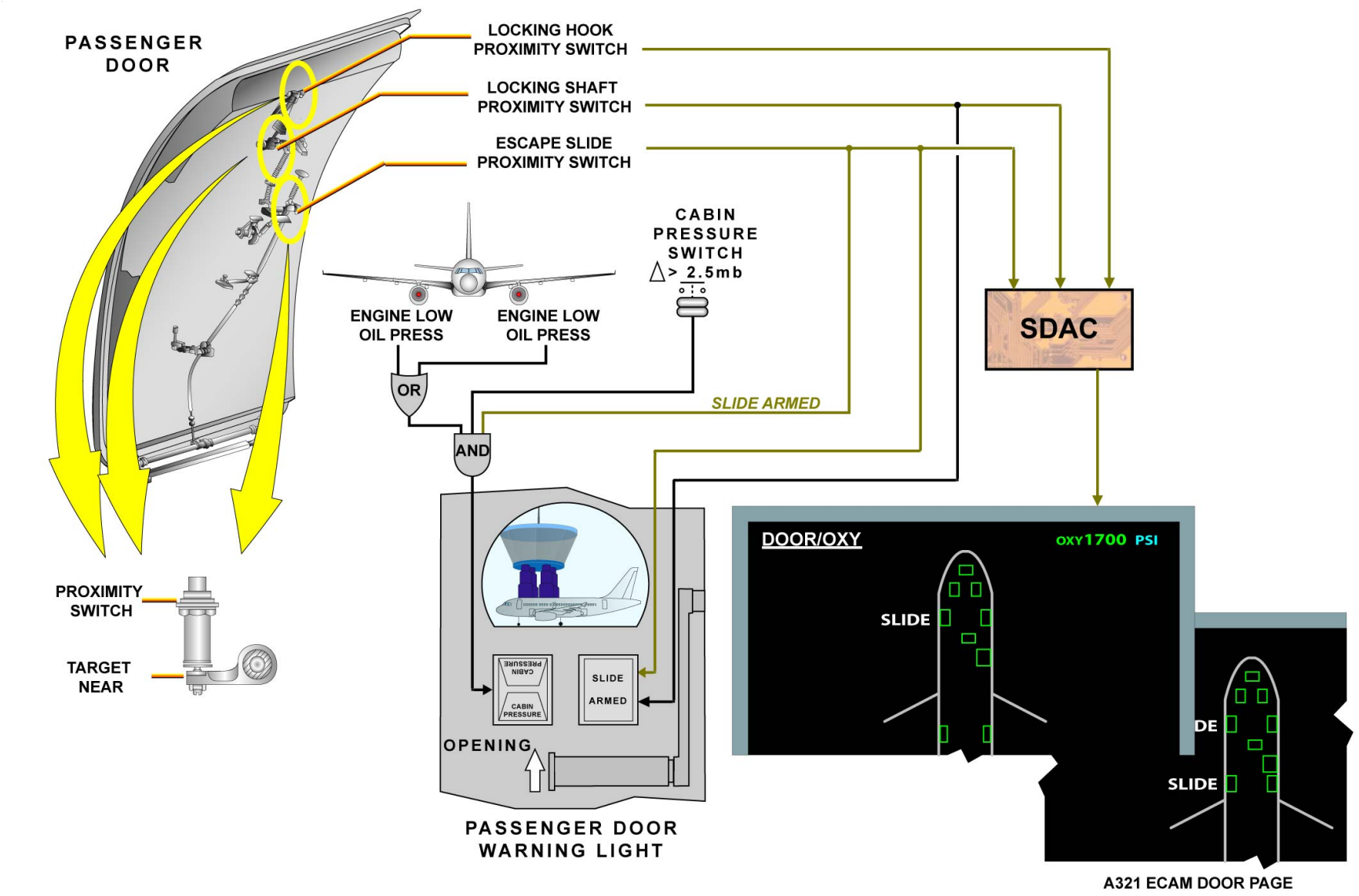
ESCAPE SLIDE INDICATING AND WARNING - PRINCIPLE

The slide proximity switches give an escape slide indication on the ECAM DOOR page and slide and locking shaft proximity sensors trigger a "SLIDE ARMED" indication on the door itself.

ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR LOCKED

The white indication "SLIDE" appears on the ECAM DOOR page. The door symbol is green.

UGB13131 - U7ST0M0 - UM52DN000000001



PASSENGER DOORS - ESCAPE SLIDE INDICATING AND WARNING - PRINCIPLE & ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR LOCKED

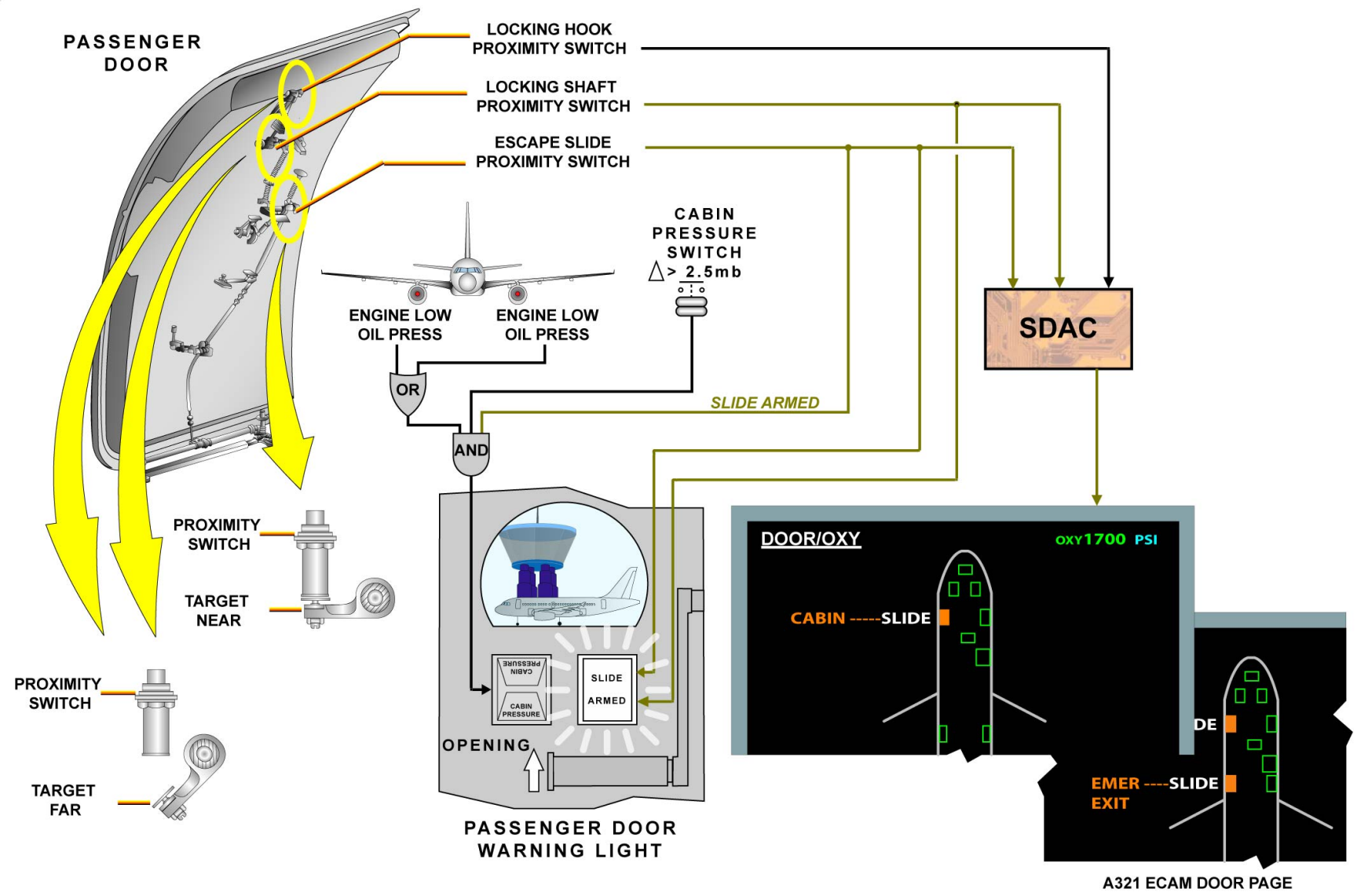
DOORS INDICATION & WARNING D/O (3)

PASSENGER DOORS (continued)

ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR NOT LOCKED

On the ECAM DOOR page, the name of the door is shown in amber, the door symbol is amber and the white SLIDE ARMED light comes on steadily on the door.

UGB13131 - U7ST0M0 - UM52DN000000001



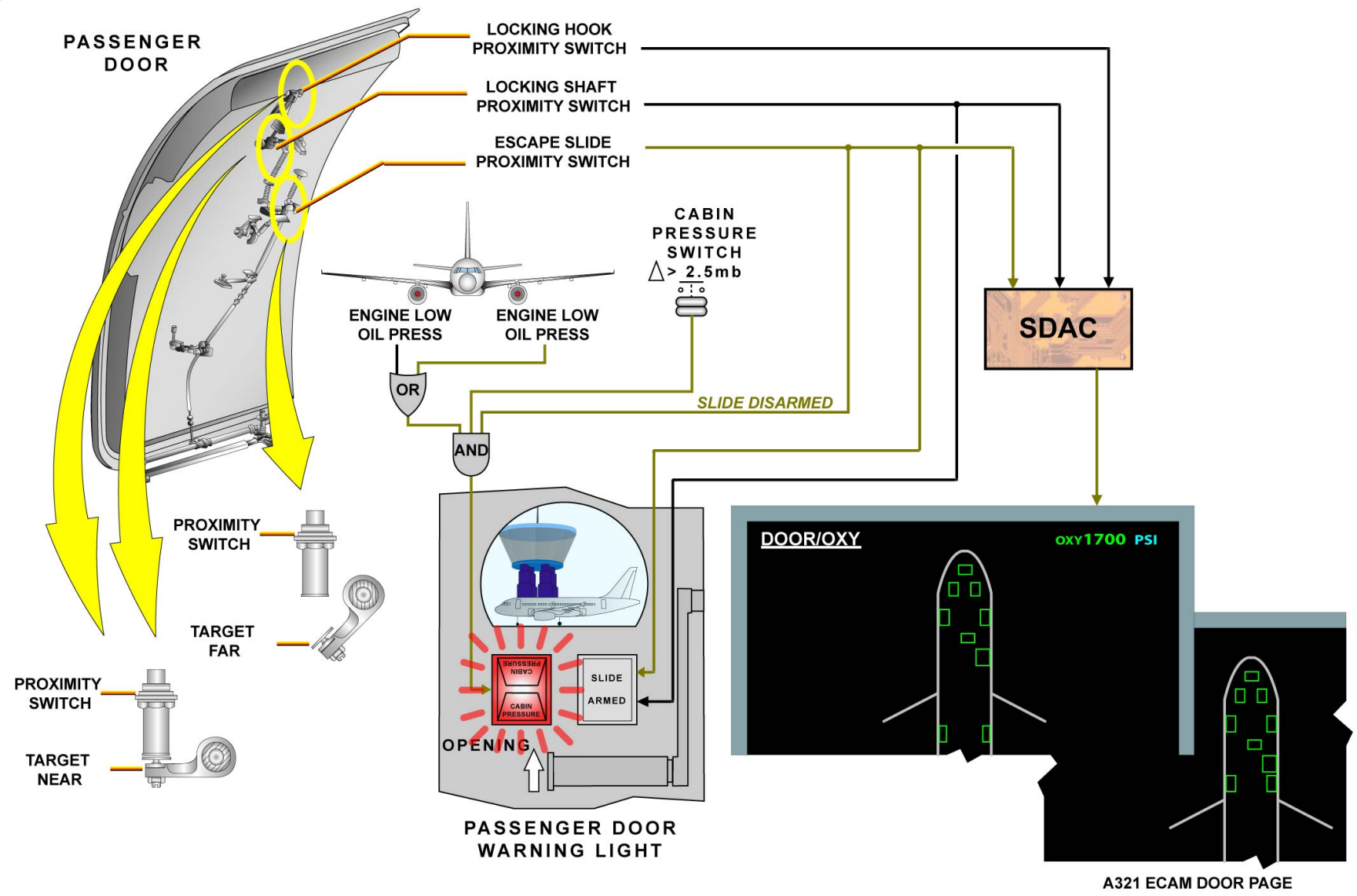
PASSENGER DOORS - ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

PASSENGER DOORS (continued)

RESIDUAL CABIN PRESSURE

The red flashing light indicates excessive residual cabin pressure. The red light flashes as soon as one of the two engines or the two engines is (are) off, the escape slide is disarmed and the residual cabin pressure is greater than 2.5 mbars (0.04 psi).



PASSENGER DOORS - RESIDUAL CABIN PRESSURE

DOORS INDICATION & WARNING D/O (3)

EMERGENCY EXIT DOORS

NOTE: only for the A318/319/320.
Each door is monitored by two proximity switches:
- the cover flap proximity switch,
- the escape slide proximity switch.

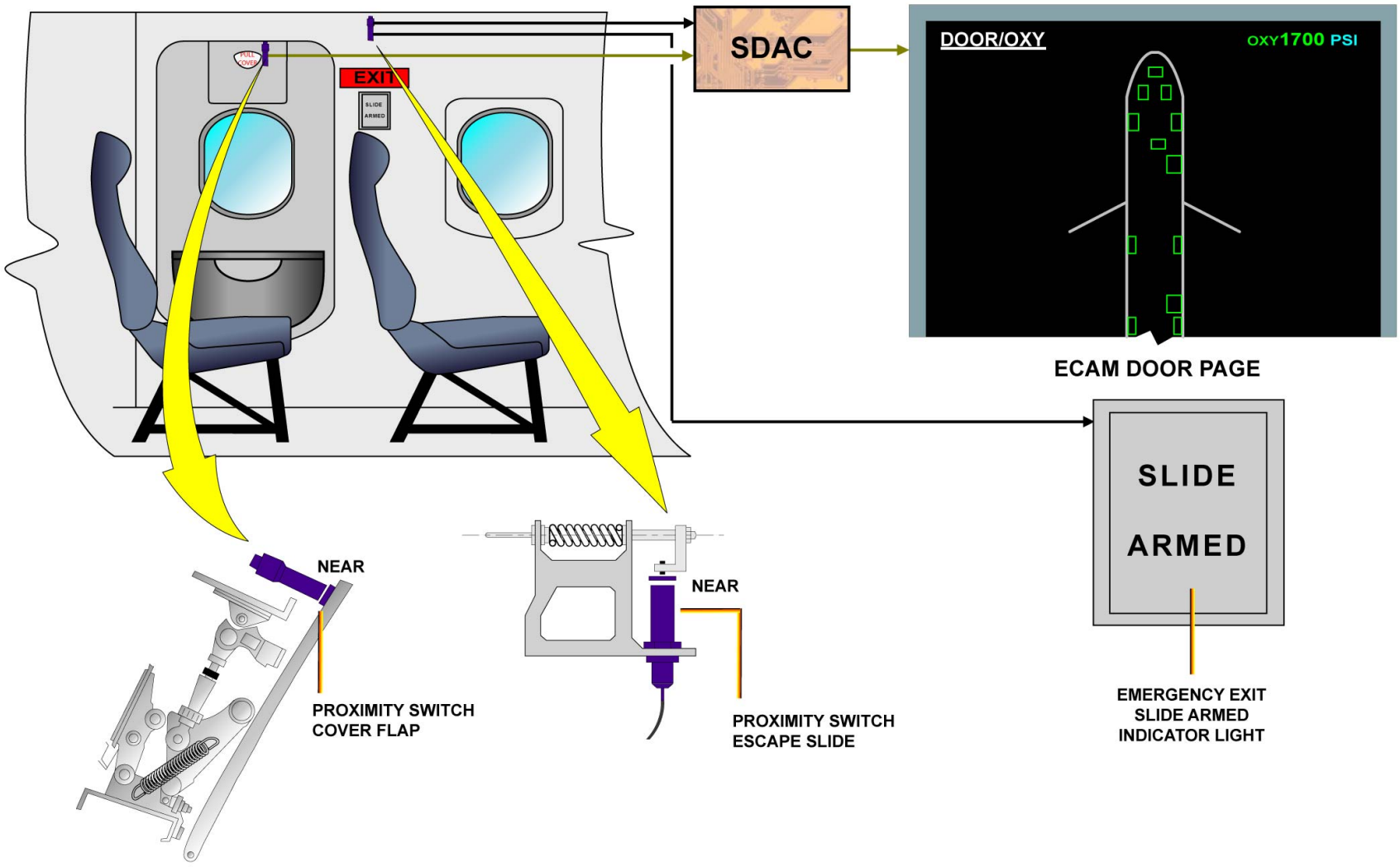
DOOR INDICATING AND WARNING - PRINCIPLE

The cover flap proximity switch gives door indication on the ECAM DOOR page via the SDAC.

DOOR INDICATING AND WARNING - LOCKED

When the door is locked, the cover flap proximity switch target is near, and the door symbol is green on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



EMERGENCY EXIT DOORS - DOOR INDICATING AND WARNING - PRINCIPLE & DOOR INDICATING AND WARNING - LOCKED

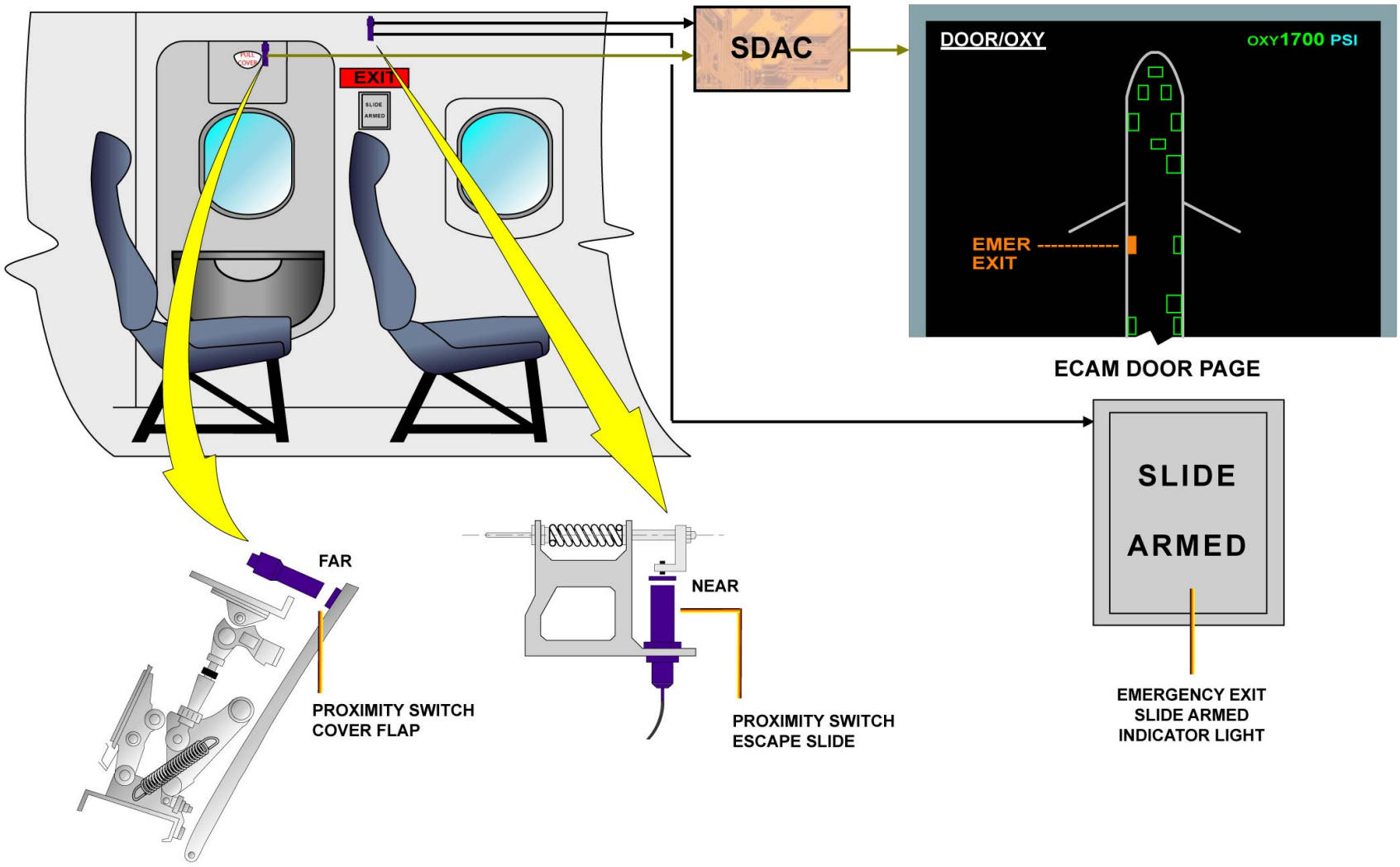
DOORS INDICATION & WARNING D/O (3)

EMERGENCY EXIT DOORS (continued)

DOOR INDICATING AND WARNING - NOT LOCKED

As soon as the cover flap proximity switch target is far, the door symbol and indication is amber on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



EMERGENCY EXIT DOORS - DOOR INDICATING AND WARNING - NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

EMERGENCY EXIT DOORS (continued)

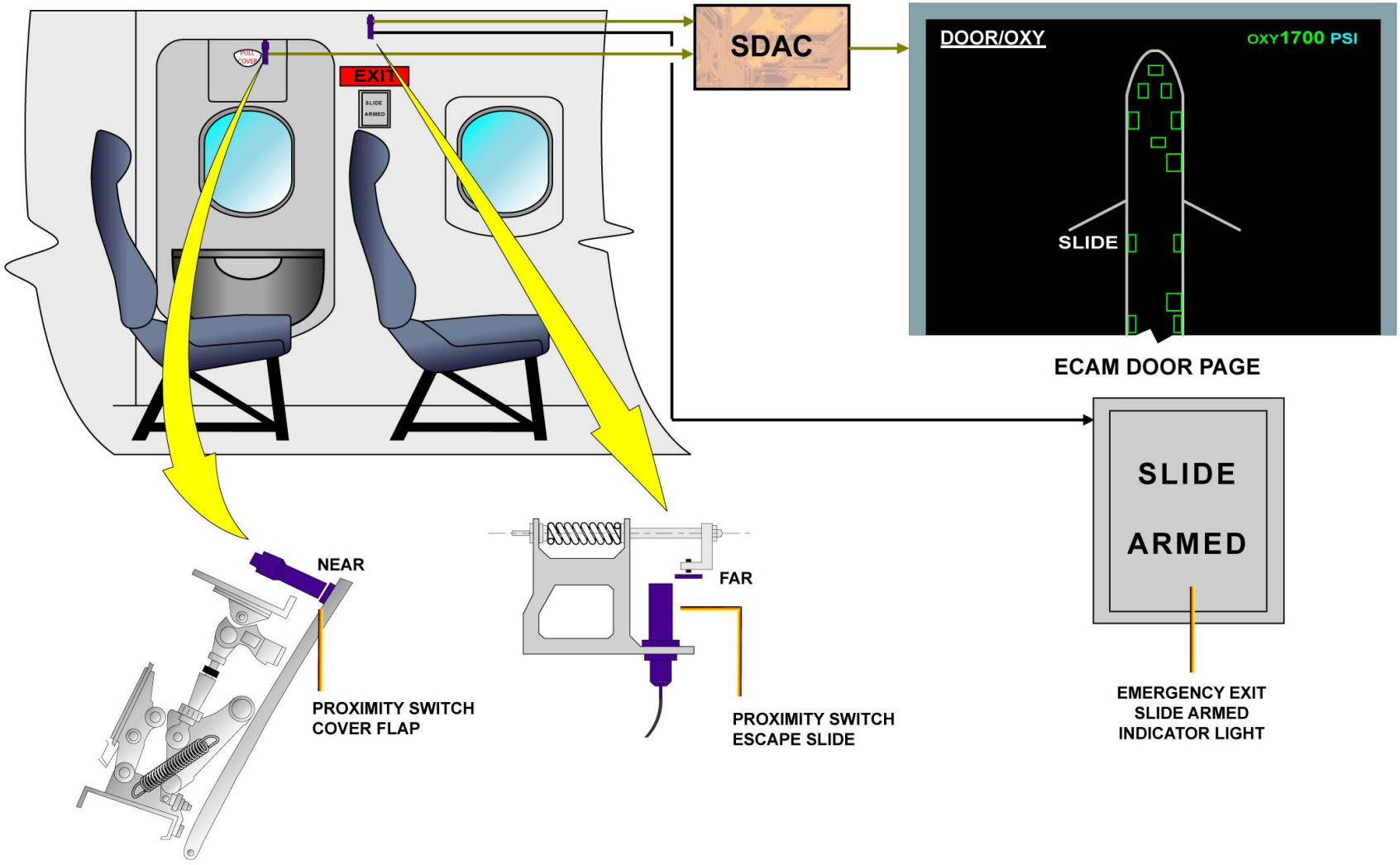
ESCAPE SLIDE INDICATING AND WARNING - PRINCIPLE

The escape slide proximity switch gives an escape slide indication on the ECAM DOOR page via the SDAC and directly to the SLIDE ARMED indicator light near the emergency exits.

ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR LOCKED

The white indication "SLIDE" appears on the ECAM DOOR page. The door symbol is green.

UGB13131 - U7ST0M0 - UM52DN000000001



EMERGENCY EXIT DOORS - ESCAPE SLIDE INDICATING AND WARNING - PRINCIPLE & ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR LOCKED

UGB13131 - U7ST0M0 - UM52DN000000001

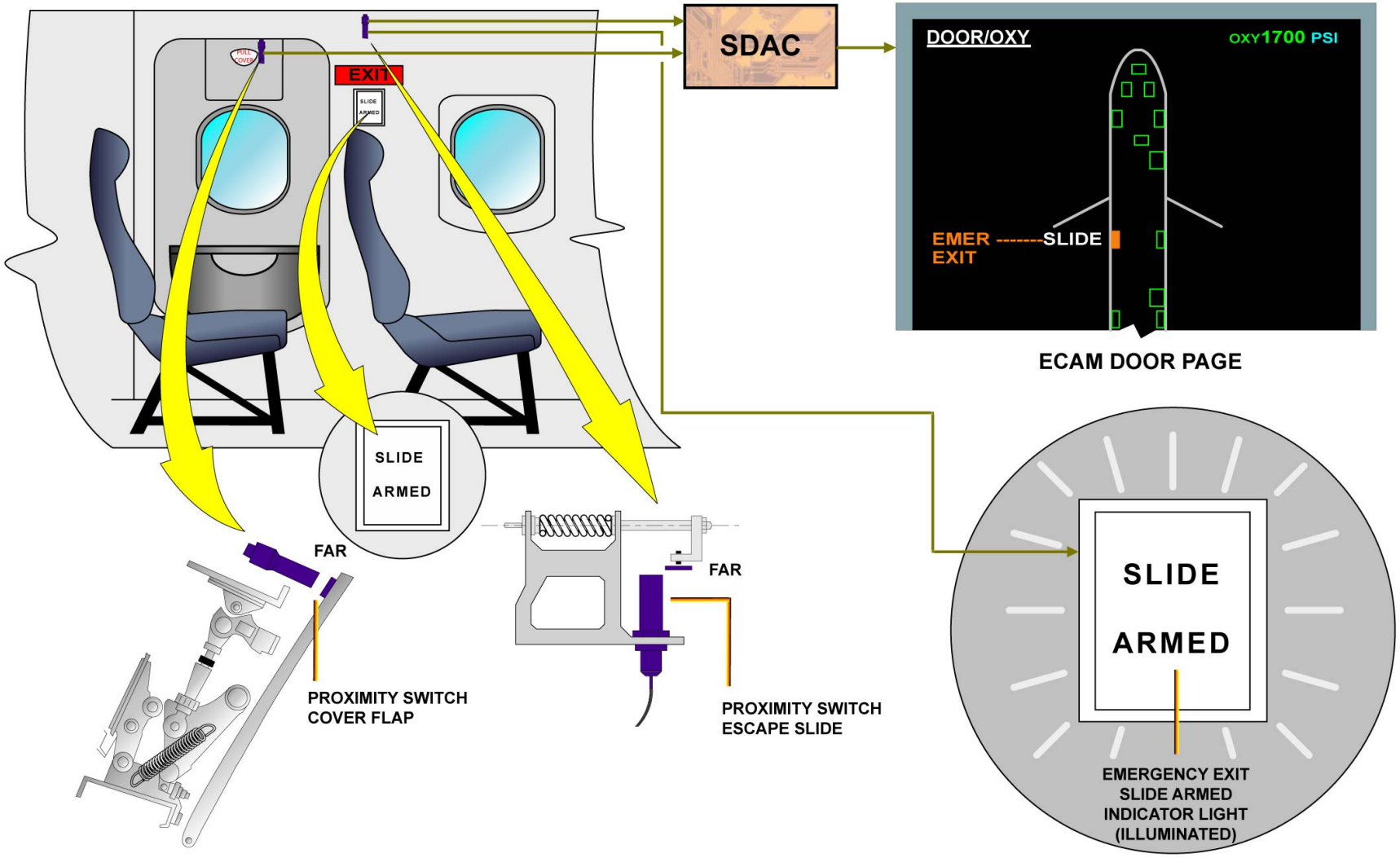
DOORS INDICATION & WARNING D/O (3)

EMERGENCY EXIT DOORS (continued)

ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR NOT LOCKED

On the ECAM DOOR page, the name of the door is shown in amber, the door symbol is amber and the white SLIDE ARMED light, near the emergency exits, comes on steadily.

UGB13131 - U7ST0M0 - UM52DN000000001



EMERGENCY EXIT DOORS - ESCAPE SLIDE INDICATING AND WARNING - SLIDE ARMED, DOOR NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

FWD & AFT CARGO DOORS

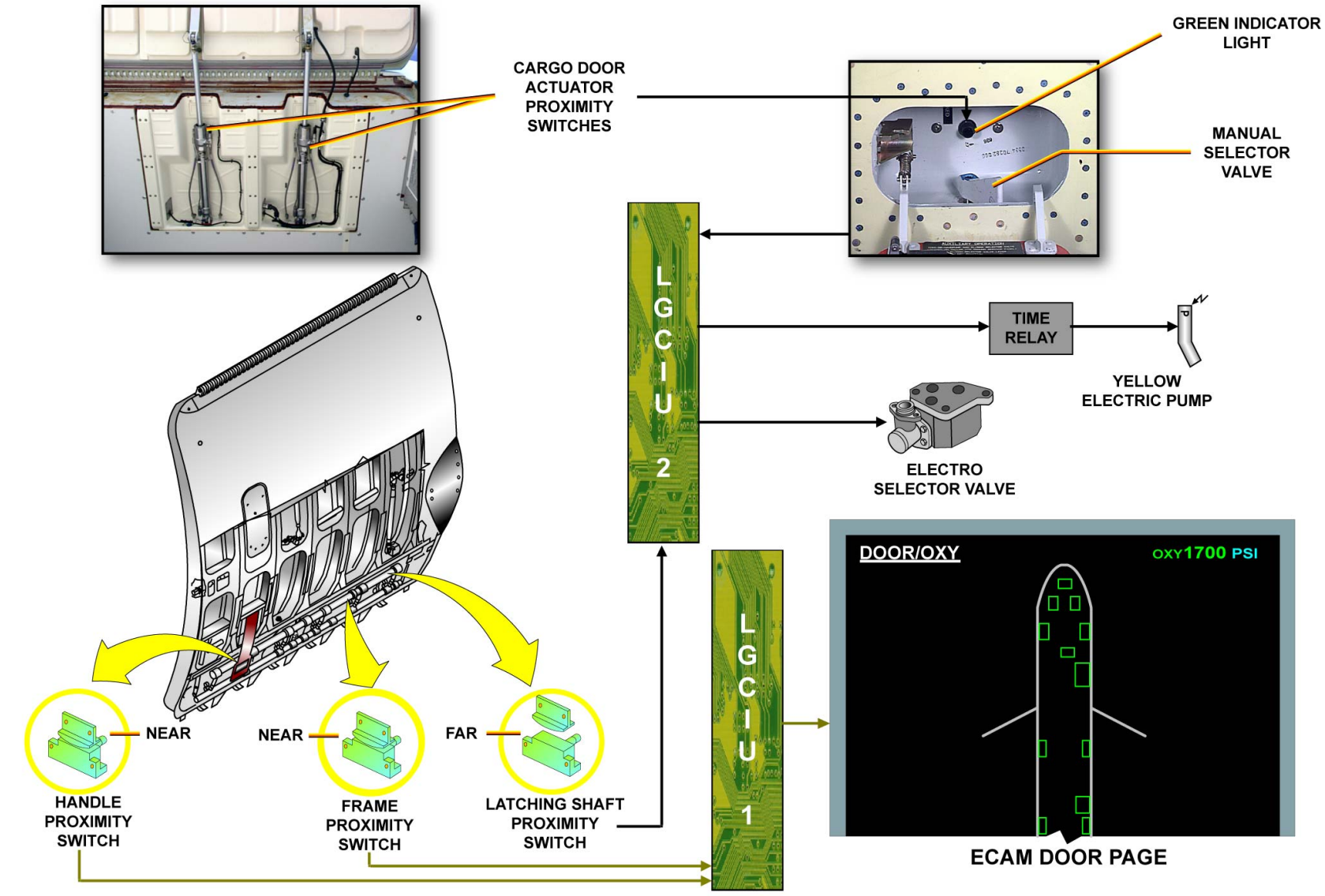
The FWD and aft cargo doors have three similar proximity switches:
- the handle proximity switch,
- the frame proximity switch,
- the latching shaft proximity switch.

DOOR INDICATING AND WARNING - PRINCIPLE

The locking handle and the frame proximity switches give the door indication on the ECAM via the Landing Gear Control and Interface Unit (LGCIU).

DOOR INDICATING AND WARNING - LOCKED

When the door is latched and locked, the handle and frame proximity sensor targets are near. The door symbol is green on the ECAM DOOR page.



FWD & AFT CARGO DOORS - DOOR INDICATING AND WARNING - PRINCIPLE & DOOR INDICATING AND WARNING - LOCKED

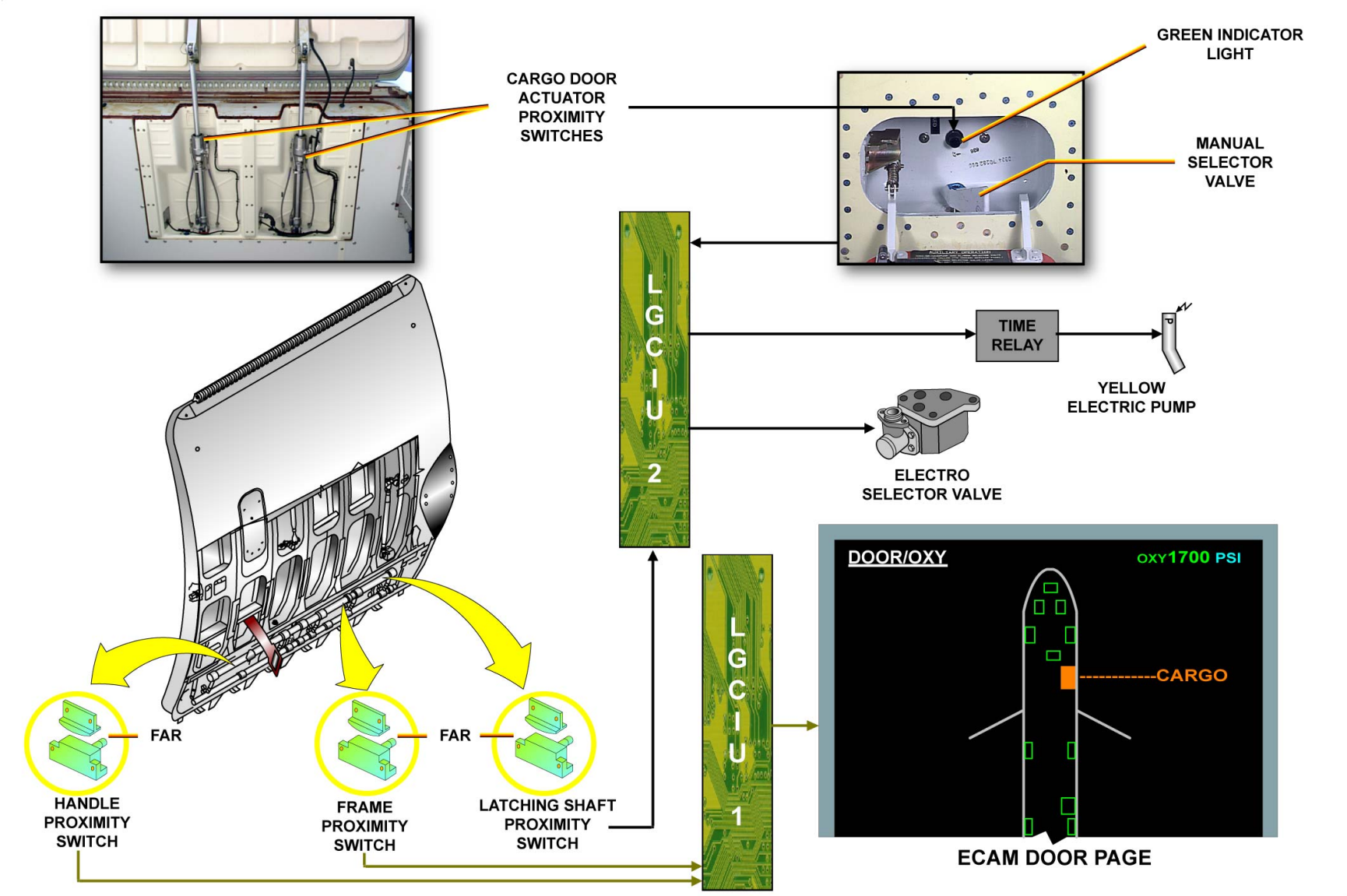
DOORS INDICATION & WARNING D/O (3)

FWD & AFT CARGO DOORS (continued)

DOOR INDICATING AND WARNING - NOT LOCKED

As soon as the frame or the door handle proximity sensor detects target far the door is indicated as unlocked and the symbol is amber on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



FWD & AFT CARGO DOORS - DOOR INDICATING AND WARNING - NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

FWD & AFT CARGO DOORS (continued)

ELECTRICAL CONTROL SYSTEM - ENABLE LOGIC

The electro selector valve is supplied when:
- the latching shaft proximity switch target is near, (this target near position is only available when the locking handle is in the fully open position),
- the manual selector valve is operated.

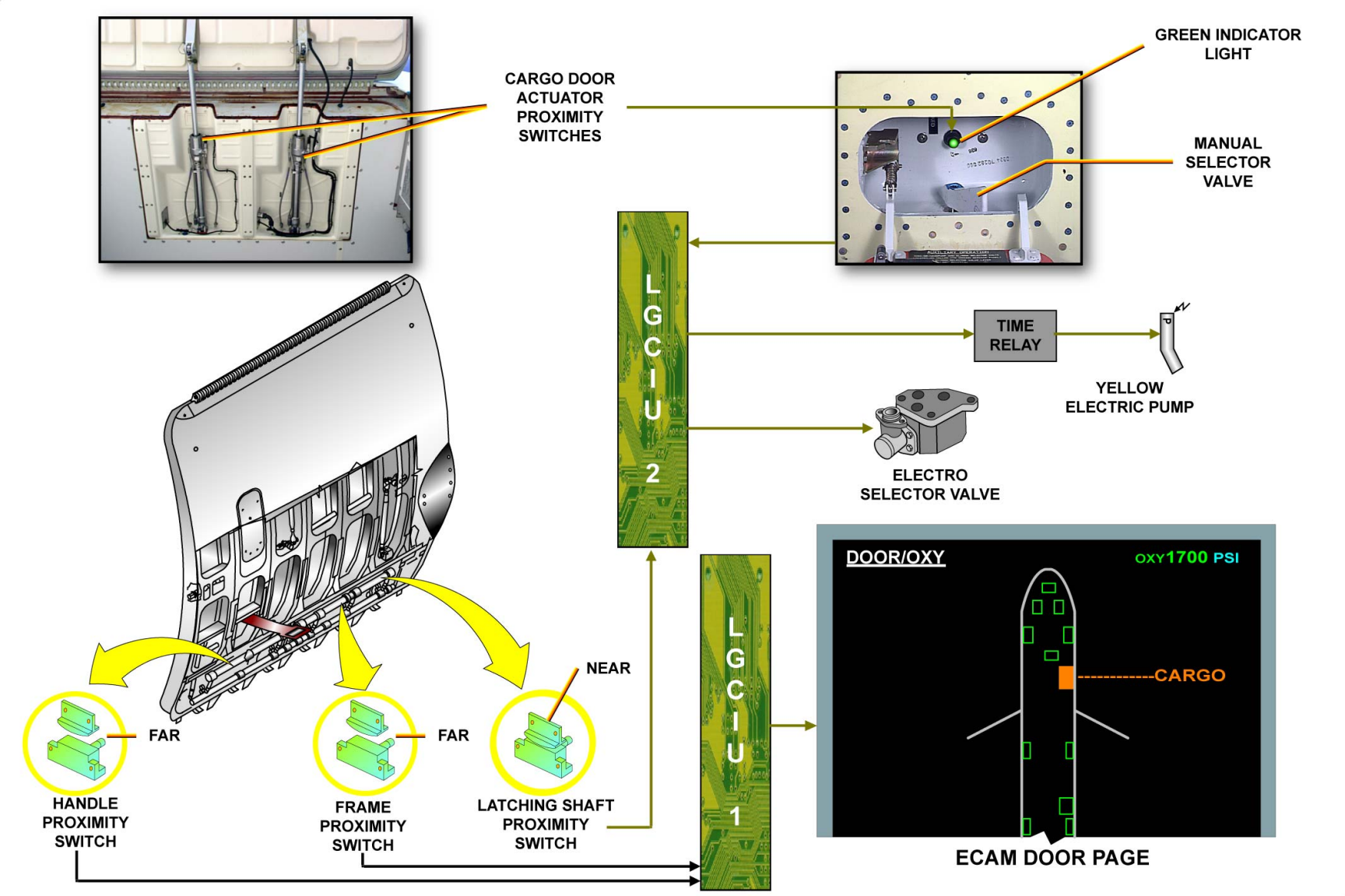
ELECTRICAL CONTROL SYSTEM - CONTROL

When the manual selector valve is operated, the integrated proximity sensor sends a signal to the LGCIU to open the electric selector valve and to start the electric pump of the yellow hydraulic system.

DOOR INDICATING AND WARNING - FULLY OPEN

When the cargo door actuators are in the fully open and locked position, their internal proximity switches control illumination of the green indicator light fitted in the manual selector recess.

UGB13131 - U7ST0M0 - UM52DN000000001



FWD & AFT CARGO DOORS - ELECTRICAL CONTROL SYSTEM - ENABLE LOGIC ... DOOR INDICATING AND WARNING - FULLY OPEN

DOORS INDICATION & WARNING D/O (3)

AVIONICS, BULK CARGO & AIRSTAIRS DOORS

Bulk cargo and Airstairs doors are optional. The avionics, bulk cargo and airstairs doors use a single proximity switch for the door warning function. It is installed in the door frame on the fuselage.

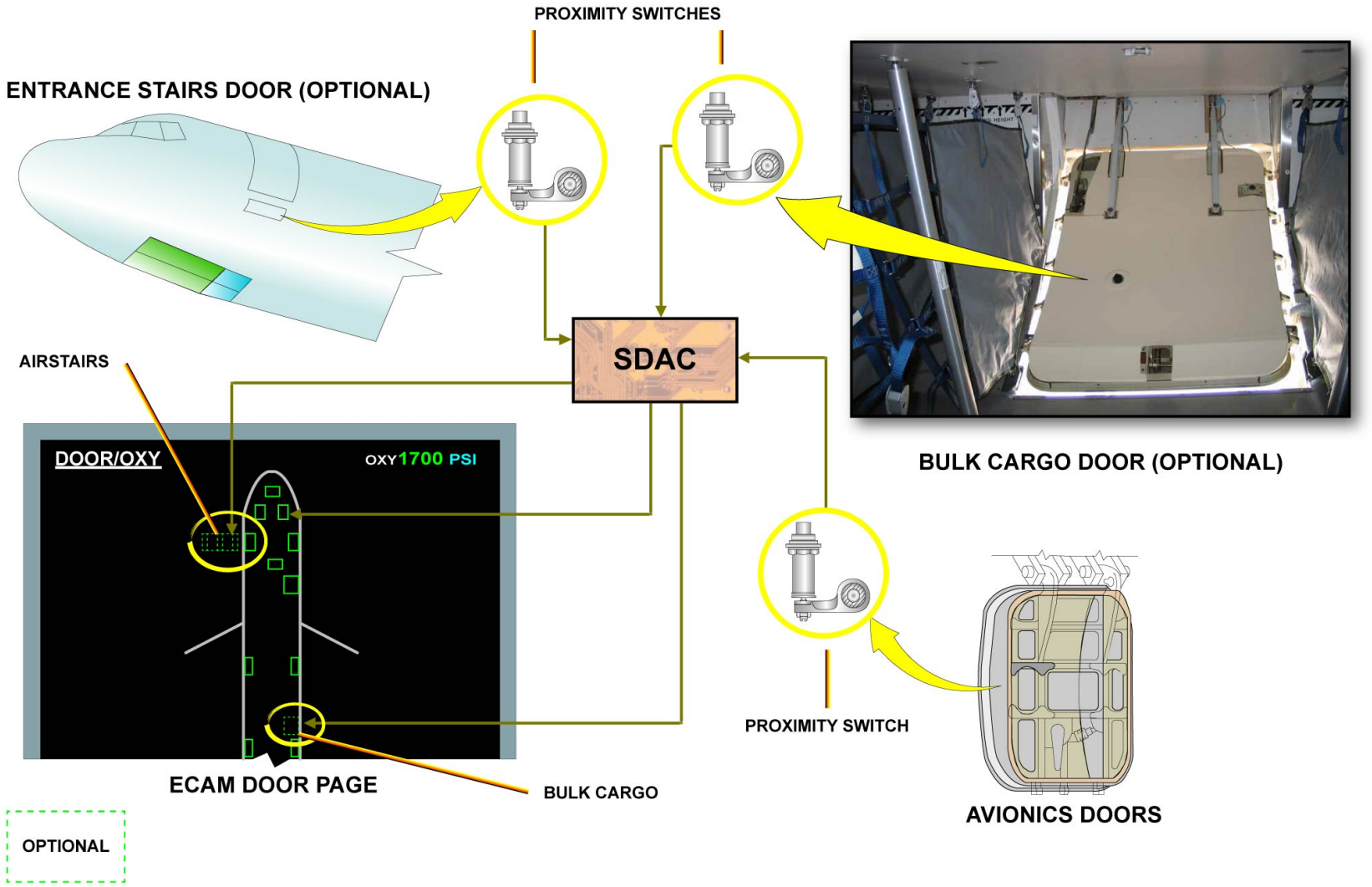
DOOR INDICATING AND WARNING - PRINCIPLE

The proximity switch gives door indications on the ECAM DOOR page via the SDAC, except for the airstairs door indications, which are not displayed when the door is closed and locked.

DOOR INDICATING AND WARNING - LOCKED

When the door is locked, the proximity switch target is near and the door symbol is green on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



AVIONICS, BULK CARGO & AIRSTAIRS DOORS - DOOR INDICATING AND WARNING - PRINCIPLE & DOOR INDICATING AND WARNING - LOCKED

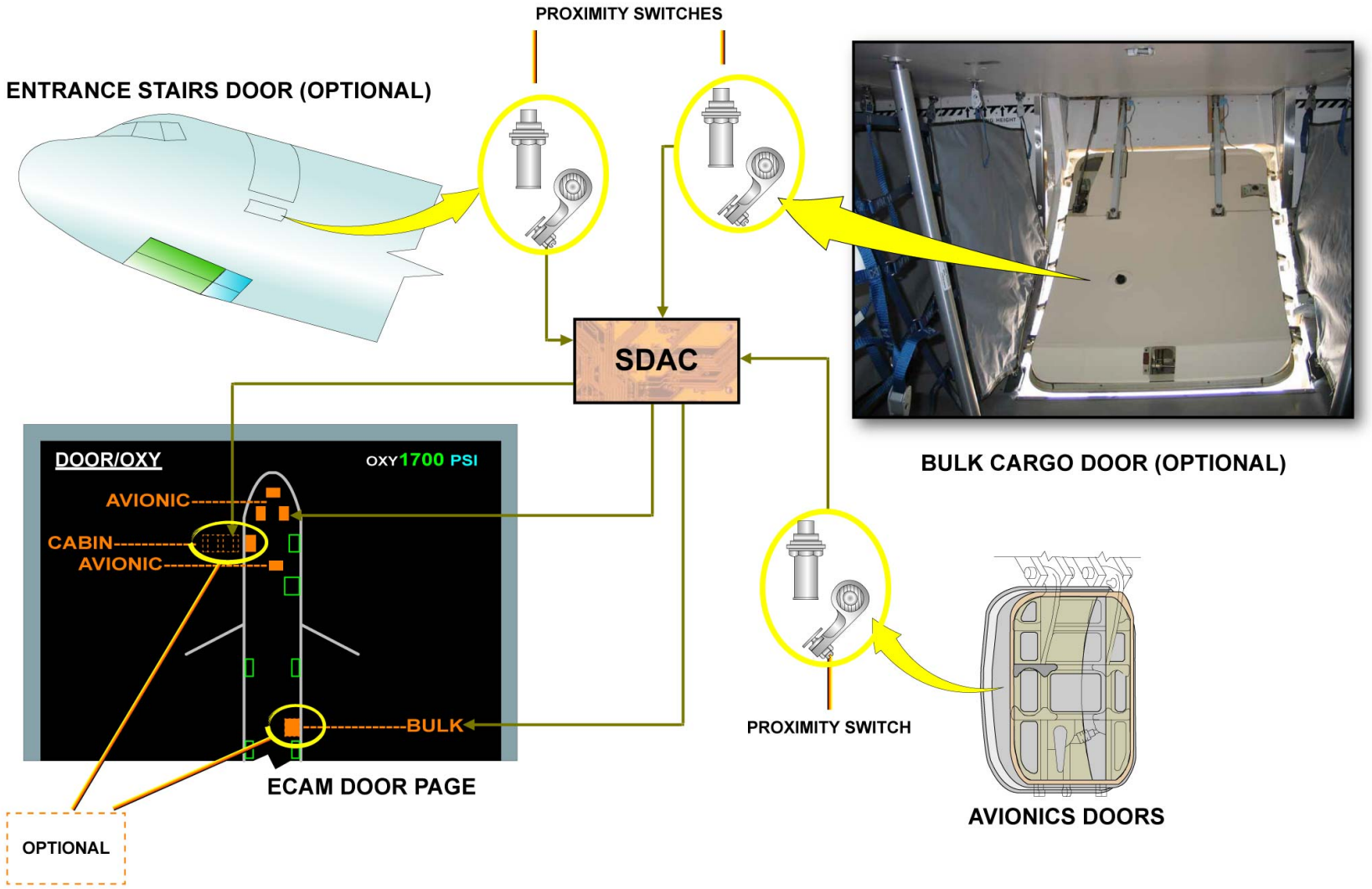
DOORS INDICATION & WARNING D/O (3)

AVIONICS, BULK CARGO & AIRSTAIRS DOORS (continued)

DOOR INDICATING AND WARNING - NOT LOCKED

As soon as the proximity switch target is far, the door symbol and indication is amber on the ECAM DOOR page.

UGB13131 - U7ST0M0 - UM52DN000000001



AVIONICS, BULK CARGO & AIRSTAIRS DOORS - DOOR INDICATING AND WARNING - NOT LOCKED

DOORS INDICATION & WARNING D/O (3)

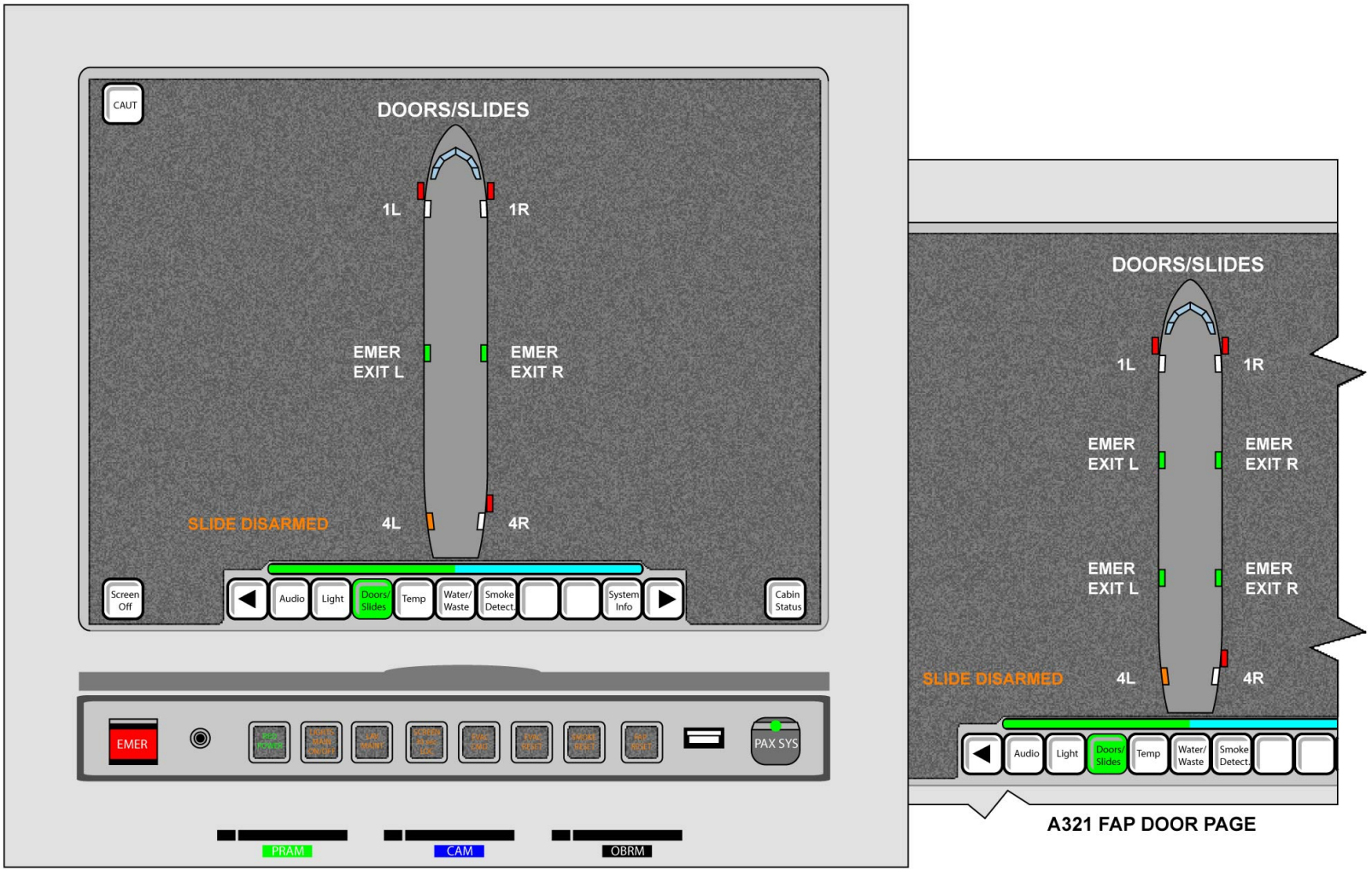
CIDS WARNINGS

Failure indicating depends on the importance of the failures. There is a Cabin Intercommunication Data System (CIDS) CAUTion light in the upper left-hand corner of each Forward Attendant Panel (FAP) page display. It is normally off. The CAUTion light flashes amber when the active DIRector detects a fault that needs cabin crew action. The action needed is displayed in the heading row (e.g. SELECT DOORS PAGE). When you select the page, the CAUTion light stops flashing and remains on steadily. If the fault is cleared, the CAUTion light goes off. For some faults the required page is automatically displayed on the FAP. When the page is automatically displayed there can also be a BLUE CARD message. This is a blue rectangle with a fault message written in amber. Major CIDS faults are also indicated to the flight crew with a Flight Warning System (FWS) level 2 or level 1 alert. All CIDS faults generate Centralized Fault Display System (CFDS) / MCDU class 1, 2, 3 messages.

FAP DOOR PAGE

This page displays the doors/slides status on the A/C:
- a red symbol indicates a door unlocked/open,
- a green symbol indicates a door locked and its escape slide armed,
- an amber symbol indicates a door locked but its escape slide disarmed. The indications SLIDE DISARMED are also shown in amber near the associated symbol.

UGB13131 - U7ST0M0 - UM52DN000000001



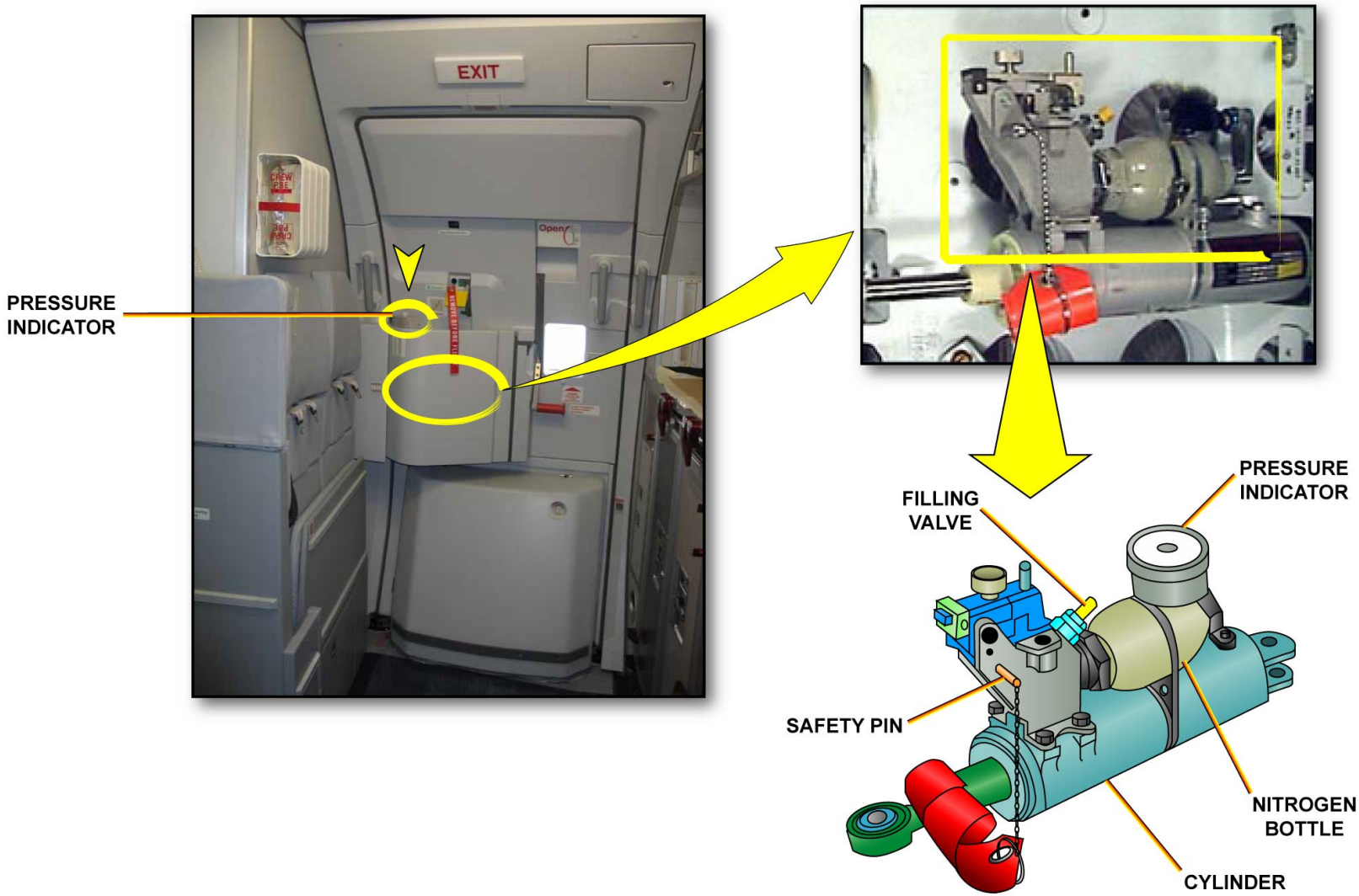
CIDS WARNINGS - FAP DOOR PAGE

DOORS SYSTEM LINE MAINTENANCE (2)

SERVICING

The door assist bottle pressure is checked daily through a viewing port on the door lining. A temperature-compensated pressure chart is fixed to the lining for reference.

UGB13131 - U7ST0M0 - UM52BA000000001


EXIT
PRESSURE INDICATOR
FILLING VALVE
PRESSURE INDICATOR
SAFETY PIN
NITROGEN BOTTLE
CYLINDER

SERVICING

DOORS SYSTEM LINE MAINTENANCE (2)

SERVICING (continued)

DOOR BOTTLE SERVICING

If required, the door assist bottle is serviced with nitrogen.

UGB13131 - U7ST0M0 - UM52BA000000001

SERVICING - DOOR BOTTLE SERVICING

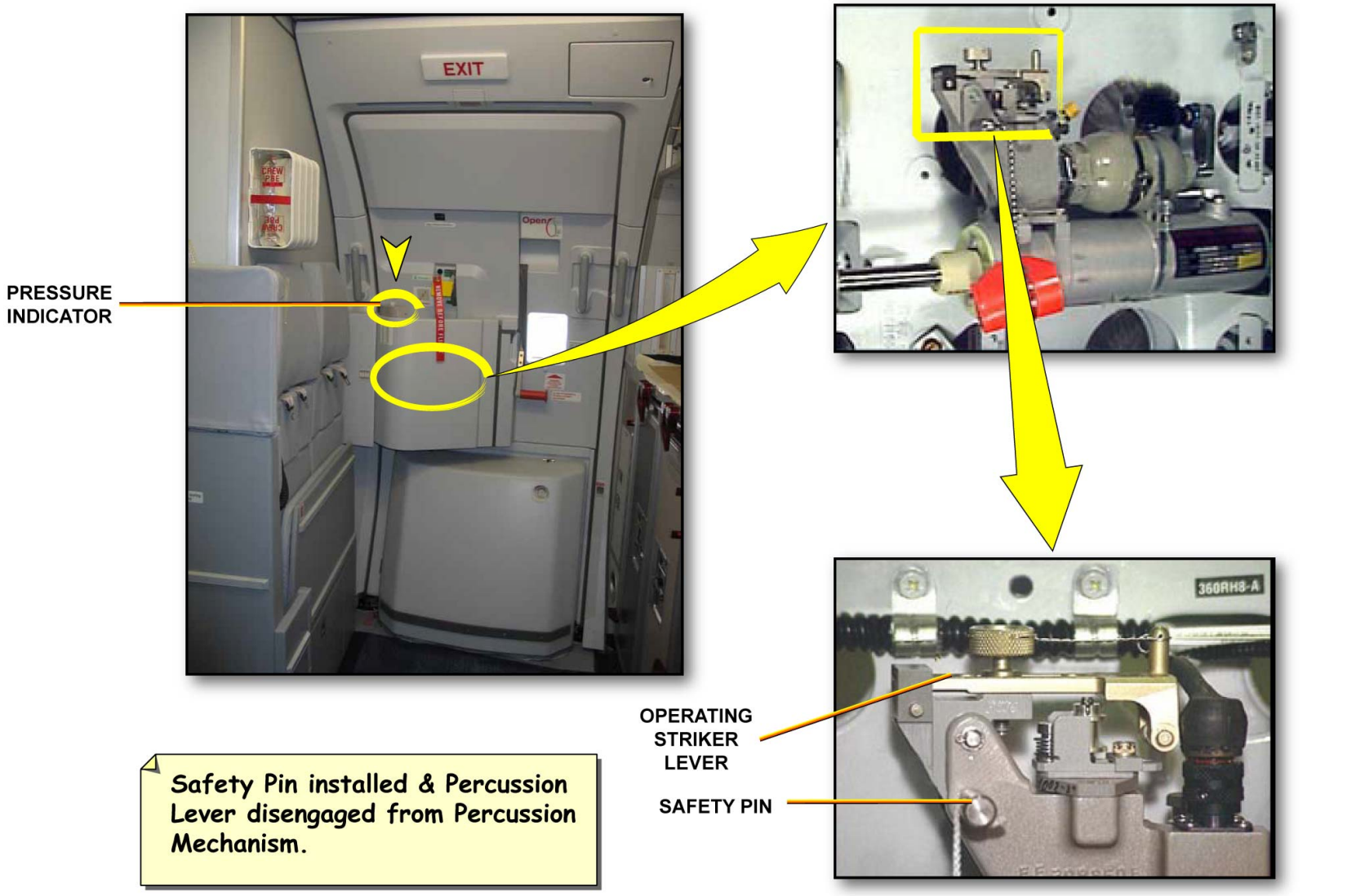
DOORS SYSTEM LINE MAINTENANCE (2)

MAINTENANCE TIPS

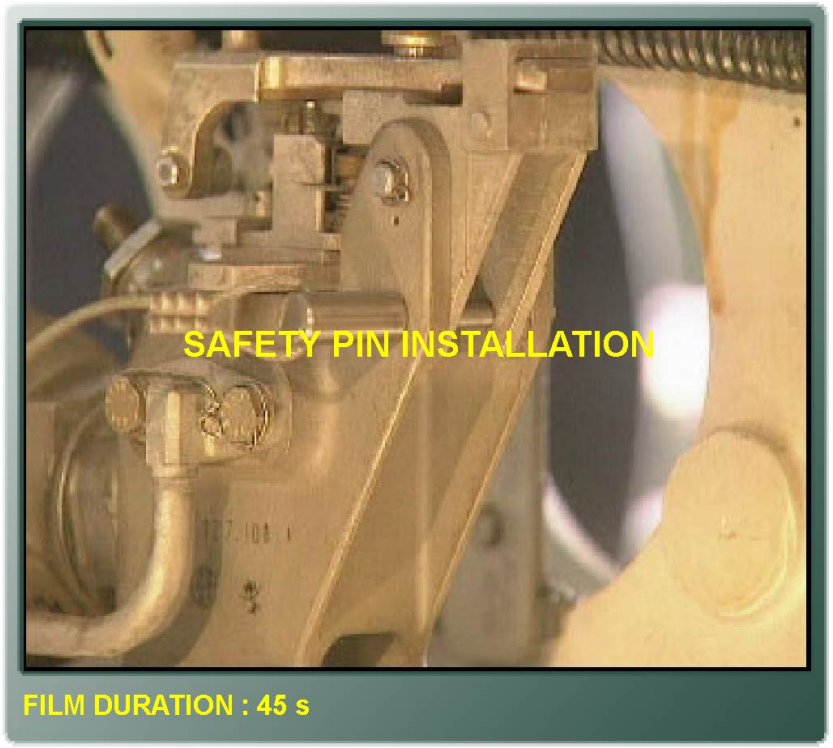
DOOR SAFETY PIN

The passenger door emergency-operating cylinder may be deactivated for maintenance. This allows the door to be opened in the ARMED configuration without discharging the cylinder.

UGB13131 - U7ST0M0 - UM52BA000000001



MAINTENANCE TIPS - DOOR SAFETY PIN



MAINTENANCE TIPS - DOOR SAFETY PIN

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UGB13131 - U7ST0M0 - UM52BA000000001

DOORS SYSTEM LINE MAINTENANCE (2)

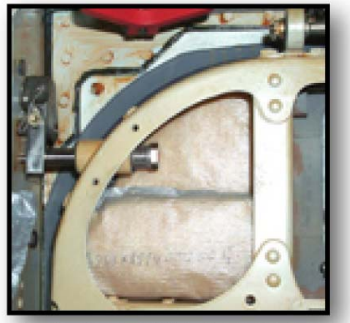
MAINTENANCE TIPS (continued)

EMERGENCY EXIT DOOR DEACTIVATION

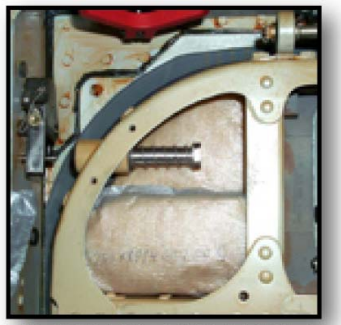
If it is necessary to open the emergency exit for maintenance, the automatic slide deployment mechanism must be deactivated.

UGB13131 - U7ST0M0 - UM52BA000000001

HATCH RELEASE LEVER



LATCH PIN ARMED



LATCH PIN DISARMED

MAINTENANCE TIPS - EMERGENCY EXIT DOOR DEACTIVATION

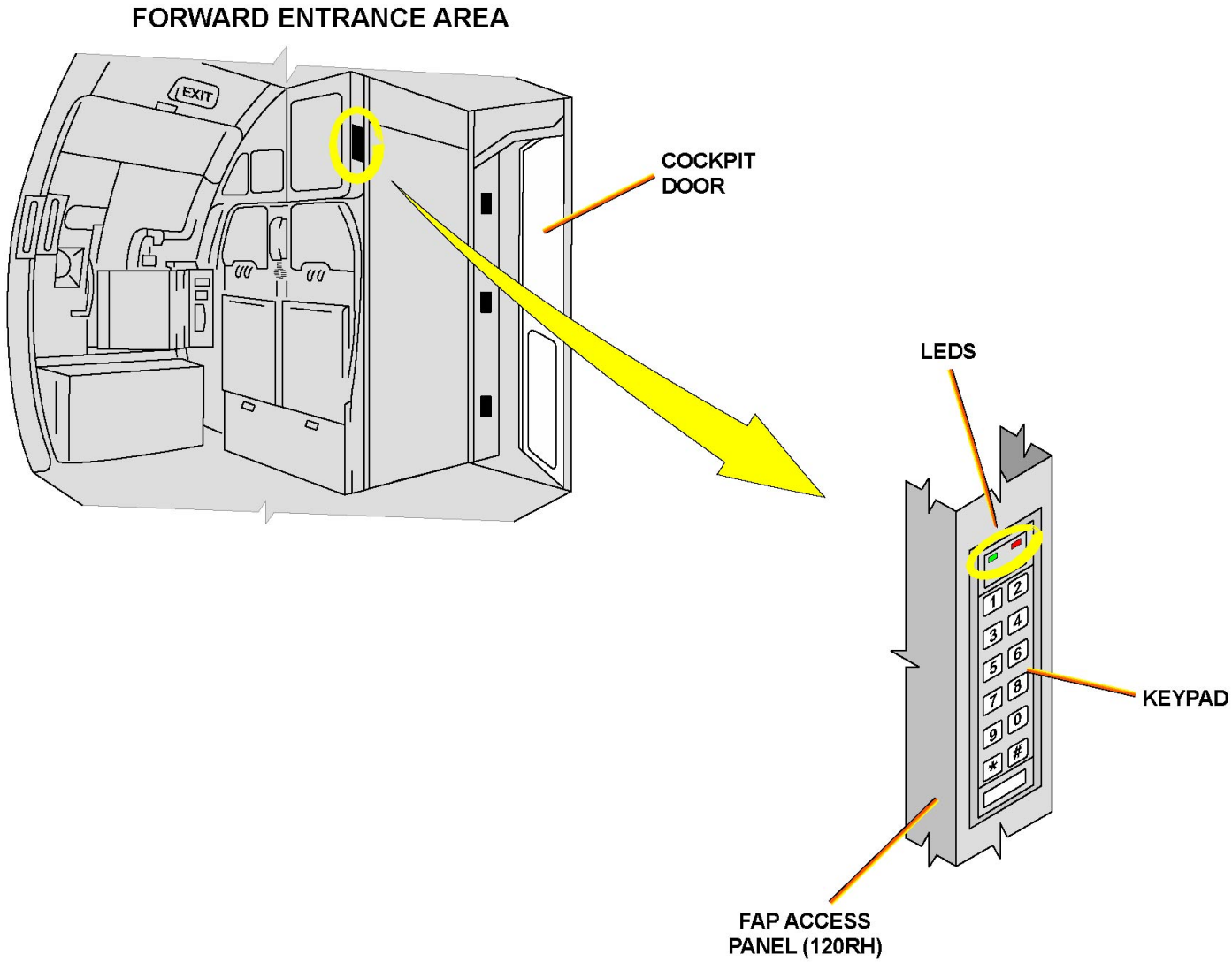
DOORS SYSTEM LINE MAINTENANCE (2)

MAINTENANCE TIPS (continued)

EMERGENCY COCKPIT DOOR ACCESS

To get access to the cockpit in case of an emergency.
1. Enter the four digit code plus "#" on the keypad
- The buzzer in the cockpit comes on continuously,
- The green LED on the keypad flashes.
2. If the cockpit toggle switch is not operated within a set time (15 sec. - 2 minutes), the control unit unlocks the door for 5 s. During this 5 second period:
- The green LED on the keypad comes on for 5 s.,
- The buzzer stops,
- Now the cockpit door can be opened.

UGB13131 - U7ST0M0 - UM52BA000000001



MAINTENANCE TIPS - EMERGENCY COCKPIT DOOR ACCESS

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STM
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